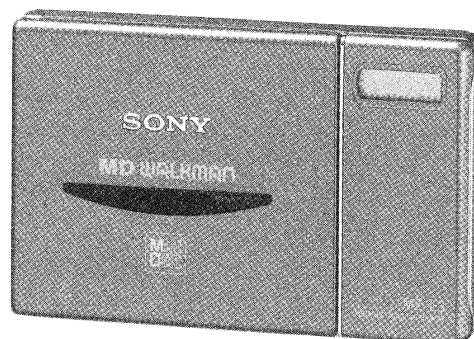


MZ-E3

SERVICE MANUAL



*US Model
Canadian Model
AEP Model
UK Model
E Model
Australian Model
Tourist Model*

Model Name Using Similar Mechanism	MZ-E2
MD Mechanism Type	MT-MZE3-110
Optical Pick-up Type	KMS-201A/J-N

SPECIFICATIONS

System

Audio playing system

MiniDisc digital audio system

Laser diode properties

Material: GaAlAs

Wavelength: $\lambda = 780 \text{ nm}$

Emission duration: continuous

Laser output: less than $44.6 \mu\text{W}$

(This output is the value measured at a distance of 200 mm from the lens surface on the optical pick-up block.)

Revolutions

400 rpm to 900 rpm (CLV)

Error correction

Advanced Cross Interleave Reed

Solomon Code (ACIRC)

Sampling frequency

44.1 kHz

Coding

Adaptive Transform Acoustic Coding (ATRAC)

Modulation system

EFM (Eight to Fourteen Modulation)

Number of channels

2 stereo channels

1 monaural channel

Frequency response

20 to 20,000 Hz $\pm 3 \text{ dB}$

Wow and Flutter

Below measurable limit

Outputs

Headphones: stereo mini-jack, maximum output level 5 mW + 5 W, load impedance 16 ohm

General

Power requirements

Sony AC Power Adaptor (supplied)

connected at the DC IN 4.5 V jack: 220-

230 V AC, 50/60 Hz (European model)

120 V AC, 60 Hz (Canadian model)

100-240V AC, 50/60 Hz (Other models)

Two R6 (size AA) batteries (supplied only with tourist model)

Nickel metal hydride rechargeable battery BP-DM20 (supplied only with tourist model)

Lithium ion rechargeable battery LIP-12 (not supplied)

Battery operation time

See "Using on dry batteries" (page 10)

Dimensions

Approx. 116 x 19.9 x 74 mm (w/h/d)

(4 $\frac{5}{8}$ x 1 $\frac{3}{16}$ x 3 in.)

Mass

Approx. 170 g (6.0 oz) the player only

Approx. 265 g (9.5 oz) incl. a premastered

MD, headphones with a remote controller, and two Sony alkaline AM3 (N) batteries

— Continued on next page —

PORTABLE MINIDISC PLAYER
SONY®

Supplied accessories

AC power adaptor (1)
Headphones with a remote controller (1)
R6 (size AA) alkaline batteries (2,
supplied only with tourist model)
Nickel metal hydride rechargeable
battery (1, supplied only with tourist
model)
Battery case (1, for LIP-12 Lithium-ion
Battery)
Carrying case (1)

Optional accessories

BP-DM20 Nickel Metal Hydride
Rechargeable Battery
LIP-12 Lithium-ion Rechargeable Battery
ACP-MZ60A* AC Power Adaptor/
Battery Charger
CPA-8 Car Connecting Pack
MDR-D55, MDR-D77 Stereo Headphones
SRS-A50 Sony Active Speakers
CK-MD4 MiniDisc Carrying Case
CK-MD10 MiniDisc Filing Box

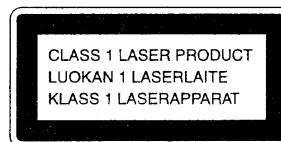
* ACP-MZ60A can only be used as a
battery charger. It cannot be used as an
AC power adaptor with this player.

Your dealer may not handle some of the
above listed accessories. Please ask the
dealer for detailed information about the
accessories in your country.

US and foreign patents licensed from
Dolby Laboratories Licensing
Corporation.

Design and specifications are subject to
change without notice.

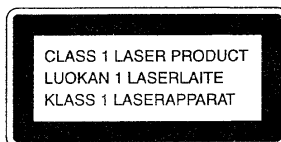
For Customers in Europe



This MiniDisc Player is classified as a
CLASS 1 LASER product.
The CLASS 1 LASER PRODUCT label is
located on the bottom exterior.

For Customers in Canada

This Class B digital apparatus meets all
requirements of the Canadian
Interference-Causing Equipment
Regulations.



This MiniDisc Player is classified as a CLASS 1
LASER product.
The CLASS 1 LASER PRODUCT label is located
on the bottom exterior.

For Customers in Australia

If the supply cord of AC power adaptor is
damaged the AC power adaptor must be
returned to the manufacturer of his agent for the
cord to be replaced.

"MD WALKMAN" is a trademark of Sony
Corporation.

Notes on chip component replacement

- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

Flexible Circuit Board Repairing

- Keep the temperature of the soldering iron around 270 °C during repairing.
- Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
- Be careful not to apply force on the conductor when soldering or unsoldering.

SAFETY-RELATED COMPONENT WARNING !!

COMPONENTS IDENTIFIED BY MARK Δ OR DOTTED
LINE WITH MARK Δ ON THE SCHEMATIC DIAGRAMS
AND IN THE PARTS LIST ARE CRITICAL TO SAFE
OPERATION. REPLACE THESE COMPONENTS WITH
SONY PARTS WHOSE PART NUMBERS APPEAR AS
SHOWN IN THIS MANUAL OR IN SUPPLEMENTS
PUBLISHED BY SONY.

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!!

LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE Δ
SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE
DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ
DE FONCTIONNEMENT. NE REMPLACER CES
COMPOSANTS QUE PAR DES PIÈCES SONY DONT
LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU
DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

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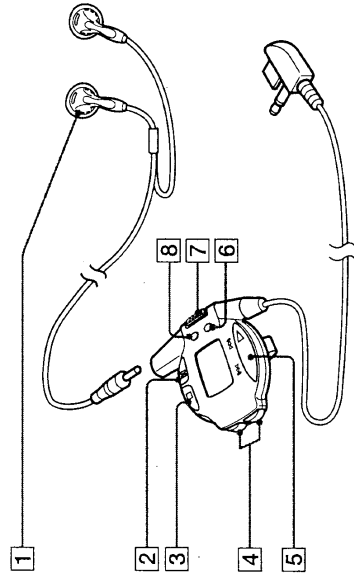
SECTION 1 GENERAL

This section is extracted
from instruction manual.

Additional information

19-EN

The remote controller

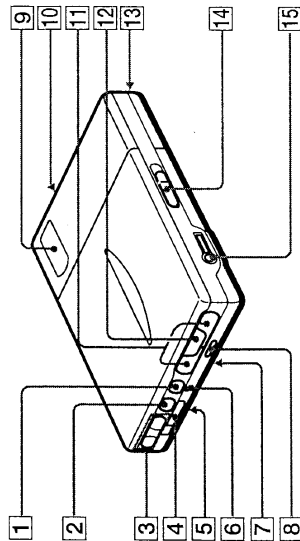


- 1 Headphones (4)
Can be replaced with optional headphones.
- 2 (pause) button (6)
- 3 (stop) button (5)
- 4 VOL (volume) +/- buttons (5)
- 5 (play)/< /> />> buttons (search, AMS) buttons (6)
- 6 PLAY MODE button (7)
- 7 HOLD button (8)
- 8 DISPLAY button (8)

Looking at the controls

See pages in () for more details.

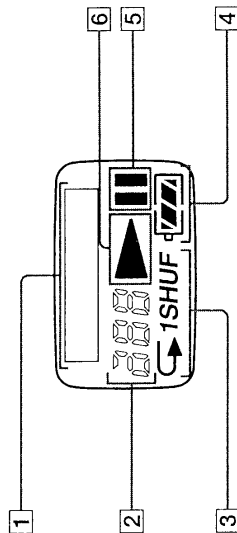
The player



- 1 (pause) button (6)
- 2 STOP/CHG (stop/charge) button (5)
- 3 VOLUME +/- button (5)
- 4 HOLD switch (8)
- 5 BASS BOOST switch (9)
- 6 OPR (operate) / CHG(charge) lamp (11)
- 7 AVLS switch (9)
- 8 PLAY MODE button (7)
- 9 Display window (5)
- 10 DC IN 4.5 V jack (4)
- 11 < /> />> (search / AMS) button (6)
- 12 (play) button (5)
- 13 Battery compartment (10)
- 14 OPEN switch (5)
- 15 (headphones) jack (5)

18-EN

The display window on the remote controller

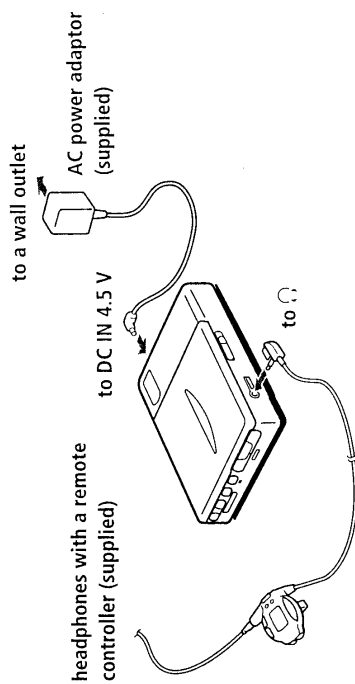


- 1 Character information display (8)
- 2 Track number indication (8)
- 3 Play mode indication (7)
- 4 Battery indication (10)
- 5 Pause indication
- 6 Operation indication (5)

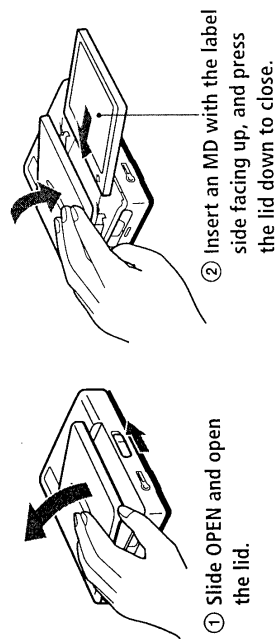
Playing an MD right away!

If you want to play an MD right now, choose to use your player on house current. Other choices are dry batteries and two kinds of rechargeable batteries (see page 10–12). The player automatically switches to play the stereo or monaural sound according to the recorded sound.

1 Make connections.



2 Insert an MD.

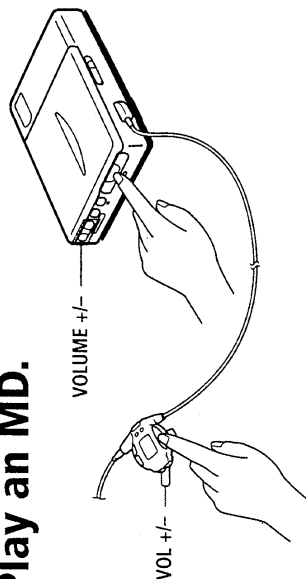


4-EN

20-EN



Play an MD.



① Press **▶**.

The player starts to play the first track. A short beep sounds in the headphones.

② Press **VOLUME +/-** (VOL +/-) on the remote controller to adjust the volume.

You can check the volume in the display of the remote controller.

To stop play, press **■STOP/CHG(■)** on the remote controller).

A long beep sounds in the headphones.

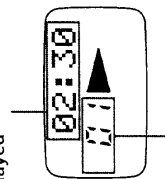
If the play does not start

Make sure the player is not locked (page 8).

Display window while playing back

- Display window on the remote controller

Track name* or Elapsed time of the track being played



track number

Playing an MD right away! (Continued)

To	Press (Beeps in the headphones)
Pause	 (Continuous short beeps) Press again to resume play.
Find the beginning of the current track	◀◀ or ◀◀◀ side of ▶▶ on the remote controller once (Three short beeps)
Find the beginning of the next track	▶▶▶ or ▶▶▶ side of ▶▶ on the remote controller once (Two short beeps)
Go backwards while playing*	keep pressing ◀◀◀ side or ◀◀◀ of ▶▶ on the remote controller
Go forward while playing*	keep pressing ▶▶▶ side or ▶▶▶ of ▶▶ on the remote controller
Remove the MD	■STOP/CHG or ■ on the remote controller and open the lid.**

* To go backwards or forward quickly without listening, press **||** and keep pressing **◀◀◀** or **▶▶▶**.

** Once you open the lid, the point to start play will change to beginning of the first track.

Playing an MD right away!

Continue to next page →

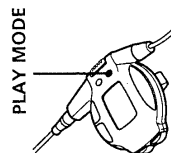
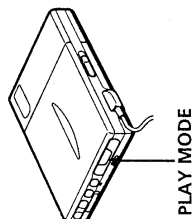
5-EN

6-EN

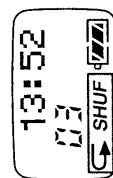
► Various ways of playback

Playing tracks repeatedly

You can play tracks repeatedly in three ways – all repeat, single repeat, and shuffle repeat.



Press PLAY MODE while the player is playing an MD.
Each time you press PLAY MODE, the play mode indication on the remote controller changes as follows.



Play mode indication

"(none)" (normal play)
All the tracks are played once.

"↺" (all repeat)
All the tracks are played repeatedly.

"↺ 1" (single repeat)
A single track is played repeatedly.

"↺ SHUF" (shuffle repeat)
All the tracks are played repeatedly in random order.

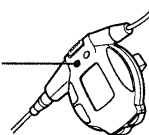
Playing an MD right away! Various ways of playback

Tips on playback

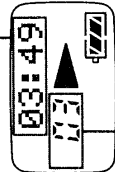
To know the track name and time

Press DISPLAY on the remote controller while the player is playing an MD.
Each time you press DISPLAY, the display changes as follows.

DISPLAY



Elapsed time



Track number

Track name



Track number

Disc name

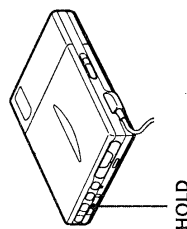


Number of the track recorded on the MD.

Note

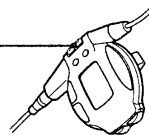
Disc and track names appear only with MDs that have been electronically labeled.

To lock the controls
To prevent the buttons from being accidentally operated when you carry the player, use this function.



HOLD

HOLD



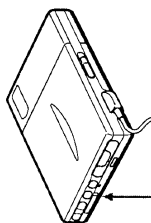
Slide HOLD in the direction of the

1

On the player, slide HOLD to lock the controls of the player. On the remote controller, slide HOLD to lock the controls of the remote controller.

To emphasize bass (Bass boost feature)

The Bass Boost feature intensifies low frequency sound for richer quality audio reproduction.



BASS BOOST (on the bottom)

Slide BASS BOOST.

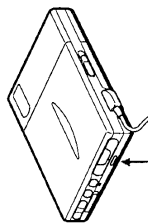
Choose MID (slight effect) or MAX (strong effect). To cancel the effect, set BASS BOOST to NORM.

Note

If the sound is distorted when emphasizing bass, turn down the volume.

To protect your hearing (AVLS)

The AVLS (Automatic Volume Limiter System) function keeps down the maximum volume to prevent excessive sound from harming your ears.



AVLS (on the bottom)

Set AVLS to ON.

The volume is kept at a moderate level, even if you try to turn the volume above the limited level.

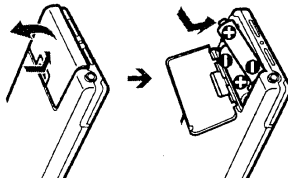
Various ways of playback

►Power sources

You can use the player on house current, dry batteries, a nickel metal hydride rechargeable battery, or a lithium ion rechargeable battery.

Using on dry batteries

Install two R6 (size AA) alkaline batteries (supplied only with tourist models), and close the lid.



When to replace or charge the batteries

You can check the battery condition with the battery indication displayed while using the player.

- Used batteries
- Weak batteries. Replace all the batteries
- The batteries have gone out. "LoBATT" flashes in the display on the remote controller, and the power goes off.

Battery life*

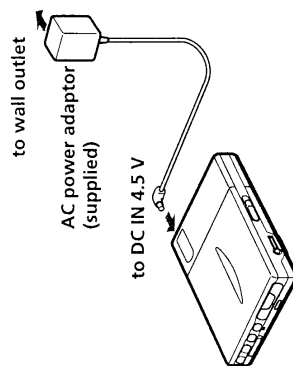
Batteries	Playback
Two R6 (size AA) alkaline batteries	Approx. 4 hours
Nickel metal hydride rechargeable battery (BP-DM20)	Approx. 3 hours
Lithium ion rechargeable battery (LIP-12)	Approx. 4 hours
Two R6 (size AA) alkaline batteries and a lithium ion rechargeable battery (LIP-12)	Approx. 8 hours
Nickel metal hydride rechargeable battery (BP-DM20) and a lithium ion rechargeable battery (LIP-12)	Approx. 7 hours

* The battery life may be shorter due to operating conditions and the temperature of the location.

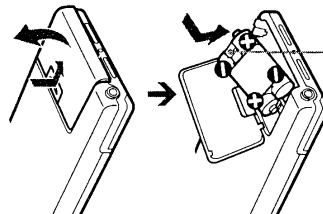
Using on a nickel metal hydride rechargeable battery

Before using the rechargeable battery (supplied only with tourist model) for the first time, charge it.

- 1 Connect the supplied AC power adaptor.



- 2 Insert the battery, and close the lid.



The projection on the battery comes on the right.

- 3 Press ■STOP/CHG on the player. OPR/CHG lamp flashes and the battery indication appears in the display and charging starts. When charging is completed, OPR/CHG lamp and the battery indication go out.

A completely discharged battery takes about 3 hours to charge fully. To stop charging before the battery is fully charged, press ■STOP/CHG.

- 4 Disconnect the AC power adaptor. As long as the player is connected to the AC power, the power will be supplied from the AC source instead of the battery.

Notes

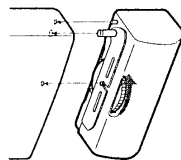
- Be sure to use the supplied AC power adaptor.
- Charging time may vary depending on the battery condition.
- When you use the battery for the first time or after a long period of disuse, the battery life may be shorter. In this case, charge and discharge the battery several times. The battery life will be restored.
- If the rechargeable battery capacity becomes half the normal life, replace it with a new one.

Power sources

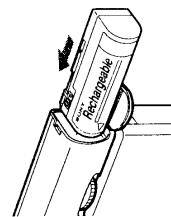
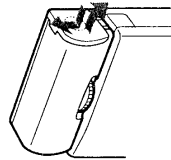
Using on a lithium ion rechargeable battery

Before using the LIP-12 lithium ion rechargeable battery (not supplied) for the first time, charge it with the ACP-MZ60A battery charger (not supplied).

- 1 Attach the battery case (supplied).



- 2 Insert the charged battery into the battery case.



Note

You cannot charge the battery in the player.

► Additional information

Precautions

On safety

- Since the laser beam used in this MD player is harmful to the eyes, do not attempt to disassemble the casing. Refer servicing to qualified personnel only.
- Do not put any foreign objects in the DC IN 4.5 V jack.

On power sources

- Use the house current, two R6 (size AA) batteries, nickel metal hydride rechargeable battery, lithium ion rechargeable battery, or car battery.
- For use in your house: Use the AC power adaptor supplied with this player. Do not use any other AC power adaptor since it may cause the player to malfunction.



Polarity of the plug

- The player is not disconnected from the AC power source (mains) as long as it is connected to the wall outlet, even if the player itself has been turned off.
- If you are not going to use this player for a long time, be sure to disconnect the power supply (AC power adaptor, dry batteries, rechargeable batteries, or car battery cord). To remove the AC power adaptor from the wall outlet, grasp the adaptor plug itself; never pull the cord.
- For use in the car: Use the CPA-8 car connecting pack (not supplied).

On heat build-up

- Heat may build up in the player if it is used for an extended period of time. In this case, leave the player to cool down.

On installation

- Never use the player where it will be subjected to extremes of light, temperature, moisture or vibration.
- Never wrap the player in anything when it is being used with the AC power adaptor. Heat build-up in the player may cause malfunction or injury.

On the headphones

Road safety

Do not use headphones while driving, cycling, or operating any motorized vehicle. It may create a traffic hazard and is illegal in some areas. It can also be potentially dangerous to play your player at high volume while walking, especially at pedestrian crossings. You should exercise extreme caution or discontinue use in potentially hazardous situations.

Preventing hearing damage

Avoid using headphones at high volume. Hearing experts advise against continuous, loud and extended play. If you experience a ringing in your ears, reduce the volume or discontinue use.

Caring for others

Keep the volume at a moderate level. This will allow you to hear outside sounds and to be considerate of the people around you.

On the MiniDisc cartridge

- Do not break open the shutter.
- Do not place the cartridge where it will be subject to light, temperature, moisture or dust.

On cleaning

- Clean the player casing with a soft cloth slightly moistened with water or a mild detergent solution. Do not use any type of abrasive pad, scouring powder or solvent such as alcohol or benzene as it may mar the finish of the casing.
- Wipe the disc cartridge with a dry cloth to remove dirt.
- Dust on the lens may prevent the unit

For the customers in Canada

DISPOSAL OF NICKEL METAL HYDRIDE BATTERY AND LITHIUM ION BATTERY.

NICKEL METAL HYDRIDE BATTERY, LITHIUM ION BATTERY. DISPOSE OF PROPERLY.

You can return your unwanted nickel metal hydride batteries and lithium ion batteries to your nearest Sony Factory Service Center.

Note: In some areas the disposal of nickel metal hydride batteries and lithium ion batteries in household or business trash may be prohibited.

For the Sony Factory Service Center nearest you call 416-499 SONY (Canada only)

Caution: Do not handle damaged or leaking nickel metal hydride battery or lithium ion battery.

from operating properly. Be sure to close the disc compartment lid after inserting and ejecting an MD.

Notes on the batteries

Incorrect battery usage may lead to leakage of battery fluid or bursting batteries. To prevent such accidents, observe the following precautions:

- Install the + and - poles of the batteries correctly.
- Do not install new and used batteries or different kinds of batteries together.
- Do not try to recharge the batteries.
- When the player is not to be used for a long time, be sure to remove the batteries.
- If a battery leak should develop, carefully and thoroughly wipe away battery fluid from the battery compartment before inserting new ones.

Note on mechanical noise

The player gives out mechanical noise while operating, which is caused by the power-saving system of the player and it is not a trouble.

Power sources

Additional information

13-EN

14-EN

Troubleshooting

Should any problem persists after you have made these checks, consult your nearest Sony dealer.

Symptom	Cause/Solution
The player does not work or works poorly.	<ul style="list-style-type: none"> • Audio sources may not be securely connected. <ul style="list-style-type: none"> ➔ Disconnect the power source once and connect it again (page 4). • Moisture has condensed inside the player. <ul style="list-style-type: none"> ➔ Take the MD out and leave the player in a warm place for several hours until the moisture evaporates. • The rechargeable battery or dry batteries are weak (LoBATT flashes). <ul style="list-style-type: none"> ➔ Replace the dry batteries or recharge the battery (page 10–12). • The dry batteries have been installed incorrectly. <ul style="list-style-type: none"> ➔ Install the batteries correctly (page 10). • You pressed a button while the disc indication was rotating quickly. <ul style="list-style-type: none"> ➔ Wait until the indication rotates slowly. • The AC adaptor was unplugged during playing or a power outage occurred. <ul style="list-style-type: none"> • While operating, the player received a mechanical shock, too much static, abnormal power voltage caused by lightning, etc. <ul style="list-style-type: none"> ➔ Restart the operation as follows. <ol style="list-style-type: none"> 1 Disconnect all the power sources. 2 Leave the player for about 30 seconds. 3 Connect the power source.
No sound comes through the headphones.	<ul style="list-style-type: none"> • The headphones plug is not firmly connected. <ul style="list-style-type: none"> ➔ Connect the headphones plug firmly to ⑦. • Volume is too low. <ul style="list-style-type: none"> ➔ Adjust the volume by pressing VOLUME +/- (VOL +/- on the remote commander). • AVLS is on. <ul style="list-style-type: none"> ➔ Slide AVLS to OFF (page 9).
An MD is not played from the first track.	<ul style="list-style-type: none"> • Disc playing stopped before it came to the last track. <ul style="list-style-type: none"> ➔ Press ◀ repeatedly or open and close the lid once to go back to the beginning of the disc, and restart playing after checking the track number in the display.

Additional information

Symptom	Cause/Solution
Playback sound skips.	<ul style="list-style-type: none"> • The player is placed where it receives continuous vibration. <ul style="list-style-type: none"> ➔ Put the player on stable place. ➔ A very short track may cause sound to skip.
Sound has a lot of static.	<ul style="list-style-type: none"> • Strong magnetism from a television or such device is interfering with operation. <ul style="list-style-type: none"> ➔ Move away from the source of strong magnetism.
Charging the rechargeable battery does not start.	<ul style="list-style-type: none"> • The rechargeable battery has been inserted incorrectly or the AC power adaptor has been connected incorrectly. <ul style="list-style-type: none"> ➔ Insert the battery correctly or connect the AC power adaptor correctly.

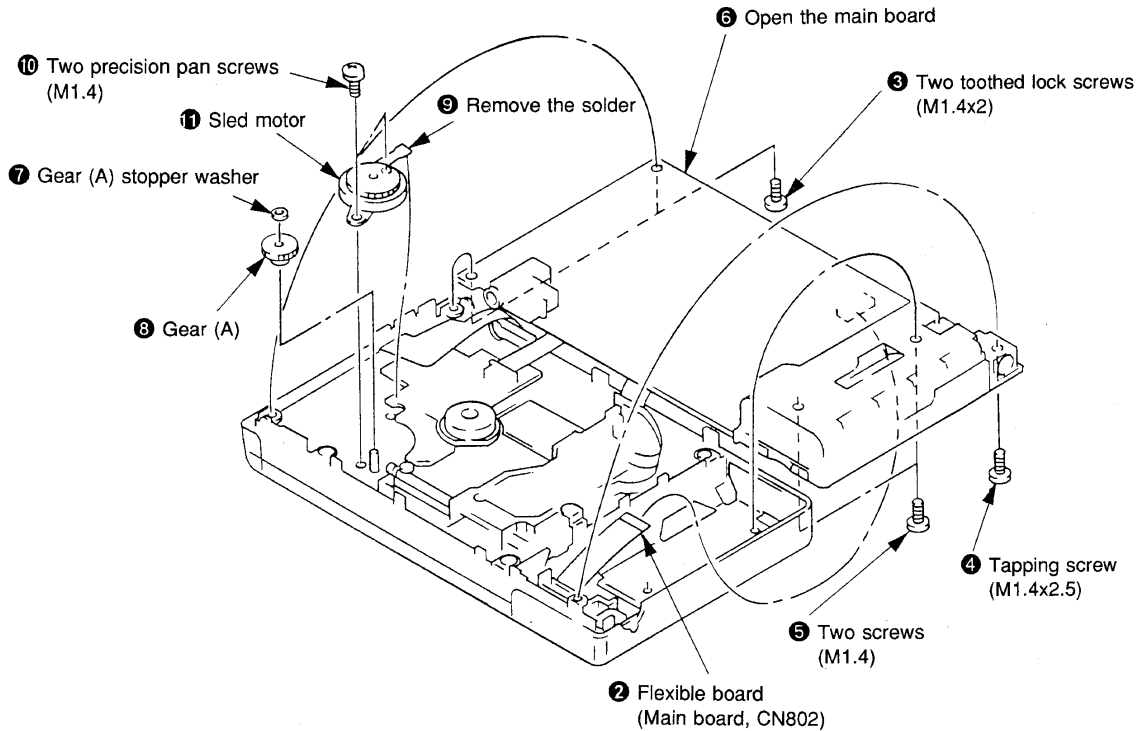
SECTION 2

DISASSEMBLY

Note : Follow the disassembly procedure in the numerical order given.

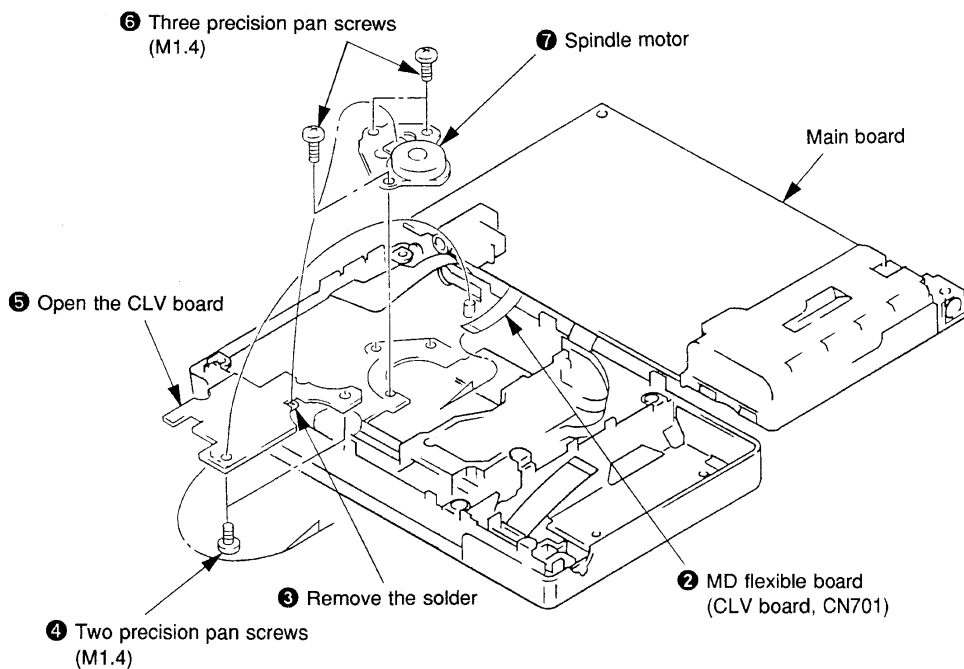
2-1. MIAN BOARD, SLED MOTOR

- ① Remove the bottom panel assembly and battely case lid.



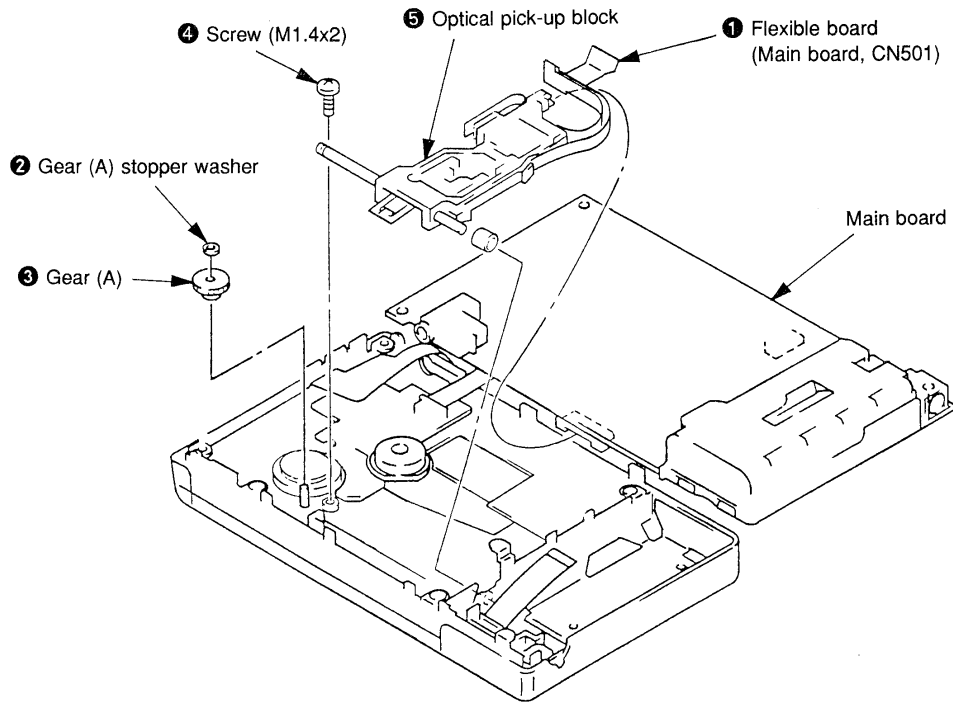
2-2. SPINDLE MOTOR

- ① Remove the bottom panel assembly, battery case lid and main board.



2-3. OPTICAL PICK-UP BLOCK (KSM-201A/J-N)

(Open the main board after the flexible board of the optical pick-up block is removed from CN501 on the main board.)



SECTION 3 TEST MODE

[Outline]

- The general adjustment mode of this unit performs CD and MO adjustments automatically when set. In this mode, the disc is determined if CD or MO and adjustments are automatically performed in order. If errors are detected, the faulty locations are displayed. The servo mode performs each adjustment automatically.

[Setting the Test Mode]

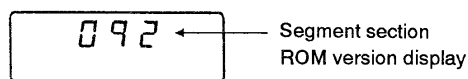
Short-circuit the soldering bridge of TAP801 (MODE) on the main board (connect Pin ④ of IC801 to the GND) and turn on the power supply.

[Exiting the Test Mode]

Turn off the power supply and open the soldering bridge of TAP801 (MODE) on the main board.

[Operations When Test Mode is Set]

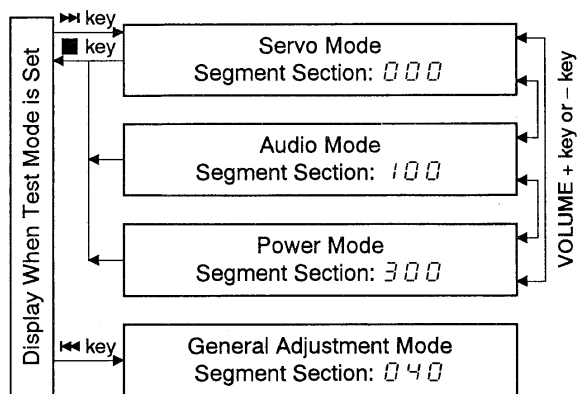
When the test mode is set, the LCD will display as follows.



- The LCD performs the following repeatedly.
ROM version displayed → all lit → all off
- The display can be held and checked by pressing ■ key.

[Structure of Test Mode]

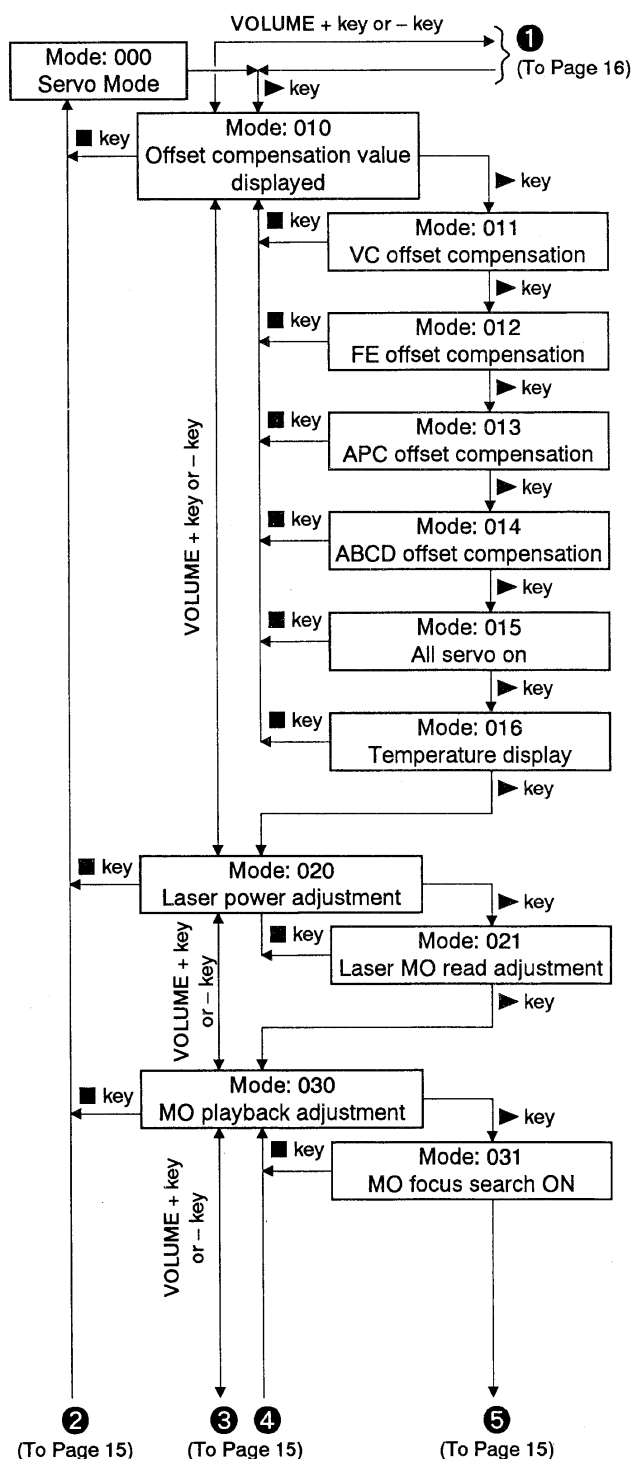
The test mode of this unit consists of the following four modes.

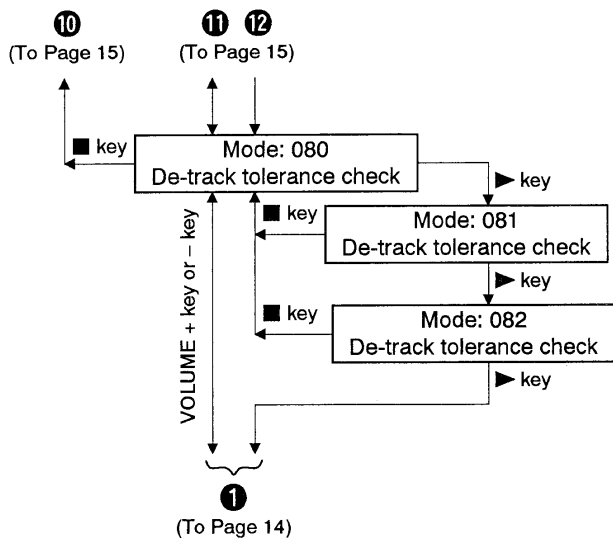


[Servo Mode]

- Set the test mode, press the ▶ key, and set the servo mode using the VOLUME + and - keys.
- When the servo mode is set, the optical pickup will move to the outer circumference or inner circumference if the ▶ key or ◀ key is pressed.
- To set other modes, refer to "Structure of Test Mode".

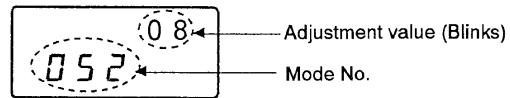
• Structure of Servo Mode



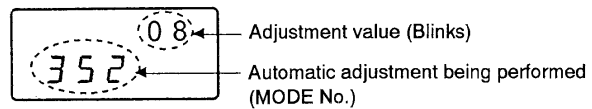


• Adjusting Method

1. When the adjustment modes are set according to “Structure of Servo Mode”, the last two digits of the mode number and the adjustment value written in the EEPROM will be displayed blinking of remote controller.

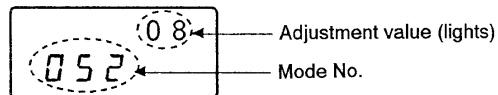


2. When the **III** key is pressed, the following will be displayed and adjustments will be performed automatically.

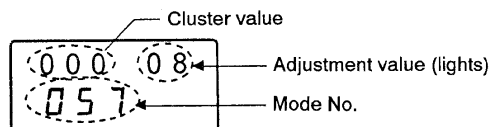


Note) The adjustment value can be changed as desired using the VOLUME + and – keys, but try to avoid this as much as possible.

3. After the adjustments are completed, the item is displayed again and the adjustment value that was blinking lights up.



• Cluster display

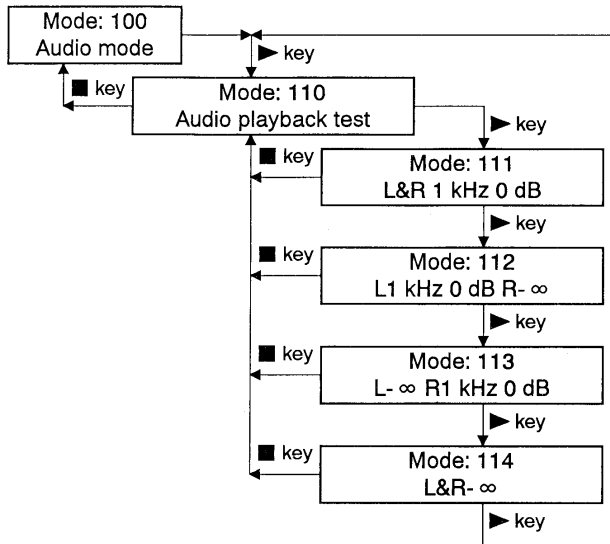


- Nothing is performed at mode numbers 070 to 073.
- At mode numbers 080 to 082, automatic adjustments are performed only in the general adjustment mode.

[Audio Mode]

- Set the test mode, press the ►► key, and set the audio mode using the VOLUME + and – keys.
- To set other modes, refer to “Structure of Test Mode”.

• Structure of Audio Mode

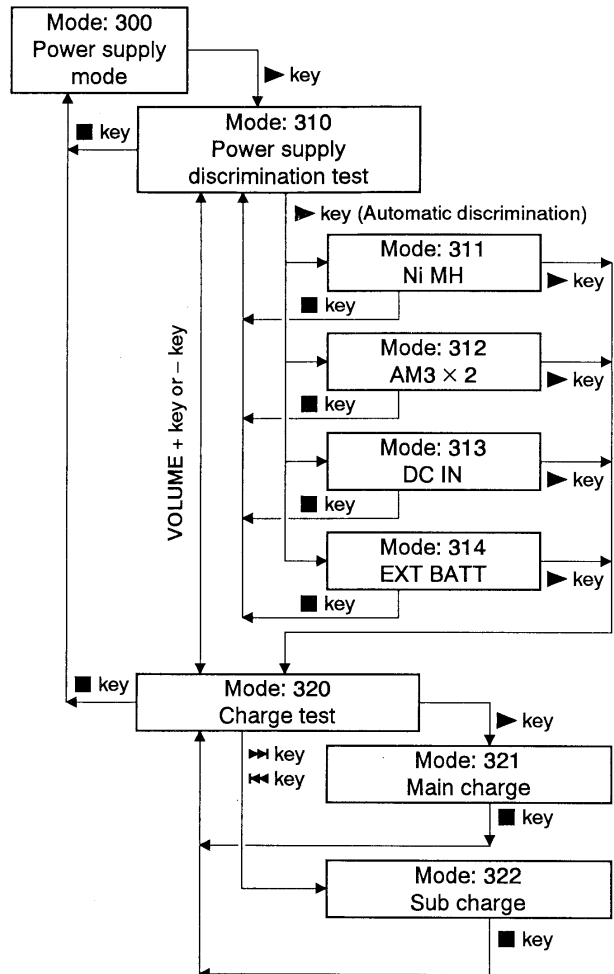


- When the ■ key is pressed at mode numbers 100, 110 to 114, the buzzer will sound.
 - When the VOLUME keys + and – are pressed at mode numbers 111 to 113 the volume of the headphone output will increase/decrease.
- When the ◀◀ key or ►► key is pressed, the volume of the headphone output will become maximum/minimum.

[Power Supply Mode]

- Set the test mode, press the ►► key, and set the power supply mode using the VOLUME + and – keys.
- To set other modes, refer to “Structure of Test Mode”.

• Structure of Power Supply Mode

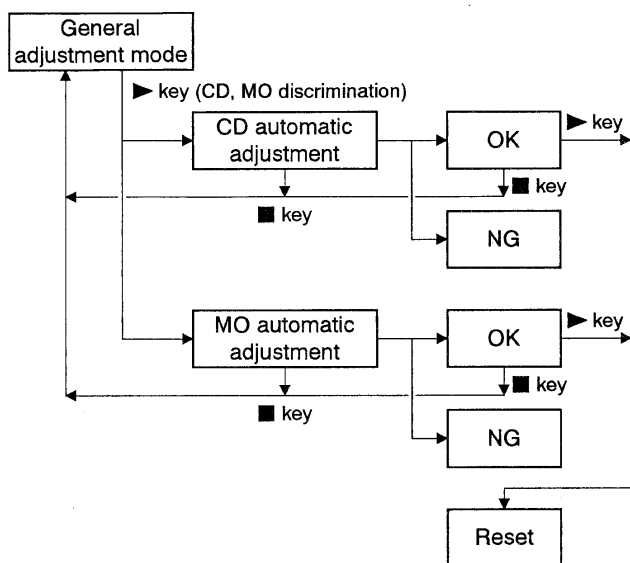


[General Adjustment Mode]

- Set the test mode, press the ◀ key, and set the general adjustment mode.
- To set other modes, exit the test mode once and set the test mode again.
- When the general adjustment mode is set, the LCD display of remote controller will be as follows.

0 0 0
0 4 0

• Structure of General Adjustment Mode



• Adjusting Method

- Set the test mode, press the ◀ key to set the general adjustment mode.
- Load the CD test disc (TDYS-1) or SONY MO disc available on the market.
- When the ▶ key is pressed, the disc is determined if CD or MO, the automatic adjustment modes are set, and adjustments are performed automatically in the following order.

• CD Automatic Adjustment

No.	Mode No.	Adjustment
1	052	CD EF balance adjustment
2	053	CD ABCD level adjustment
3	055	CD focus gain adjustment
4	056	CD tracking gain adjustment
5	057	CD focus bias adjustment

* Display of remote controller during CD automatic adjustment

0 C D
0 5 1

Mode no. during adjustment

• MO Automatic Adjustment

No.	Mode No.	Adjustment
1	032	MO playback EF balance adjustment
2	033	MO playback ABCD level adjustment
3	037	MO focus gain adjustment
4	038	MO tracking gain adjustment
5	039	MO focus bias adjustment
6	042	Low reflection CD EF balance adjustment
7	043	Low reflection CD ABCD level adjustment
8	045	Laser low reflection CD read adjustment
9	046	Low reflection CD tracking gain adjustment

* Display of remote controller during MO automatic adjustment

0 F D
0 3 7

Mode no. during adjustment

- If the automatic adjustment results are OK, the following will be displayed.

CD0
0 0 0

* In this case, when the ▶ key is pressed, the unit will be reset.

- If the automatic adjustment results are NG, the following will be displayed.

C F F (F F)
0 5 5

Adjustment results

NG mode number

* When NG, set the servo mode and perform the automatic adjustment of the NG item.
(Refer to "Servo Mode".)

SECTION 4

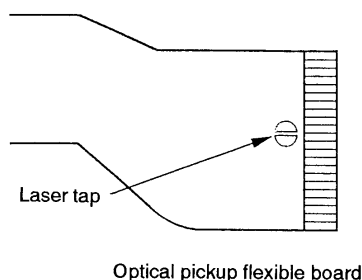
ELECTRICAL ADJUSTMENTS

[Precautions for Laser Diode Emission Check]

When checking the emission of the laser diode during adjustments, never view directly downwards as this may lead to blindness.

[Precautions for Using Optical Pick Up (KMS-201A/J-N)]

As the laser diode inside the optical pickup damages by static electricity easily, solder the laser tap of the flexible board when handling. Also take the necessary measures to prevent damages by static electricity. Handle the flexible board with care as it breaks easily.



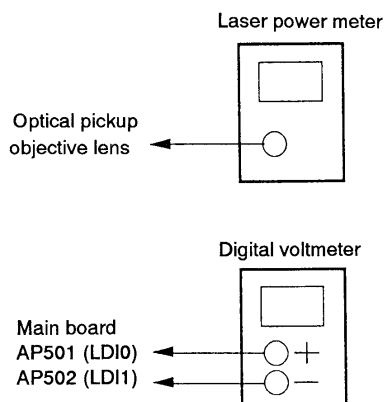
[Precautions for Adjustment]

- 1) Perform all adjustments in the order given in the test mode. After adjusting, exit the test mode.
- 2) Use the following tools and measuring instruments.
 - CD test disc TDYS-1
(Parts Code: 4-963-646-01)
 - Recorded MO disc PTDM-1
(Parts Code: J-2501-054-A)
 - Laser power meter LPM-8001
(Parts Code: J-2501-046-A)
 - Oscilloscope (Frequency band above 40 MHz. Perform the calibration of probe first before measuring.)
 - Digital voltmeter
- 3) Unless specified otherwise, supply DC4.5V from the DC IN 4.5V jack.
- 4) Switch, knob positions

Hold switch	OFF
AVLS switch (Remote controller)	OFF

[Laser Power Check]

Connection:

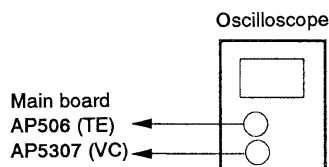


Adjusting Method:

1. Set the servo mode of the test mode (Mode: 000).
2. Press the ► key, and set the laser power adjustment mode (Mode: 020) using the VOLUME + and – keys.
3. Press the ◀◀ key and move the optical pickup to the inner most circumference.
4. Open the cover and set the laser power meter on the objective lens of the optical pickup.
5. Press the ► key, and set the laser MO read adjustment mode (Mode: 021).
6. Check that the laser power meter reading is 0.85 ± 0.06 mW.
7. Check that the voltage between AP501 (LDI0) and AP502 (LDI1) at this time is below 61 mV.
8. Press the ► key, and set the laser MO write adjustment mode (Mode: 022).
9. Check that the laser power meter reading is 6.8 ± 0.05 mW.
10. Press the ■ key to finalize the adjustment data.
11. Check that the voltage between AP501 (LDI0) and AP502 (LDI1) at this time is below 132 mV.
12. Press the ■ key.
13. Exit the test mode.

[MO Traverse Adjustment]

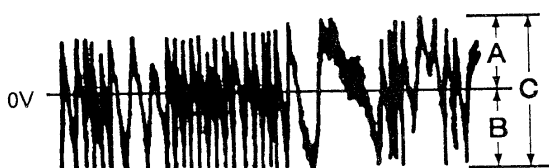
Connection:



Adjusting Method:

1. Set the servo mode of the test mode (Mode: 000).
2. Press the ► key, and set the MO playback adjustment mode (Mode: 030) using the VOLUME + and – keys.
3. Press the ◀ and ▶ keys and move the optical pickup to the center circumference.
4. Load any MO disc available on the market.
5. When the ► key is pressed, the MO playback EF balance adjustment mode (Mode: 032) will be set after focus search ON (Mode: 031).
6. Press the ■ key to perform automatic adjustment, and check that the traverse waveform is symmetrical at the top and bottom.

(Traverse Waveform)



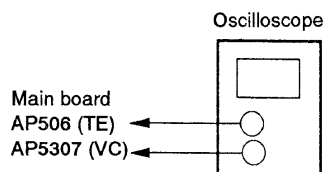
Specification: $A=B$, $C \geq 2.0 \text{ Vp-p}$

7. Check that the traverse level at this time is above 2.0 Vp-p.
8. Press the ■ key.
9. Exit the test mode.

Note) Using a recorded disc in this adjustment will erase the data.

[Low Reflection CD Traverse Adjustment]

Connection:



Adjusting Method:

1. Set the servo mode of the test mode (Mode: 000).
2. Press the ► key, and set the low reflection CD playback adjustment mode (Mode: 040) using the VOLUME + and – keys.
3. Load any MO disc available on the market.
4. When the ► key is pressed, the low reflection CD playback EF balance adjustment mode (Mode: 042) will be set after low reflection CD focus search ON (Mode: 041).
5. Press the ■ key to perform automatic adjustment, and check that the traverse waveform is symmetrical at the top and bottom.

(Traverse Waveform)

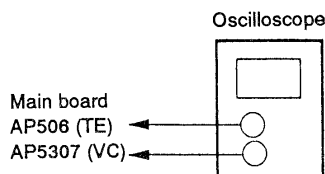


Specification: $A=B$, $C \geq 2.0 \text{ Vp-p}$

6. Check that the traverse level at this time is above 2.0 Vp-p.
7. Press the ■ key.
8. Exit the test mode.

[CD Traverse Adjustment]

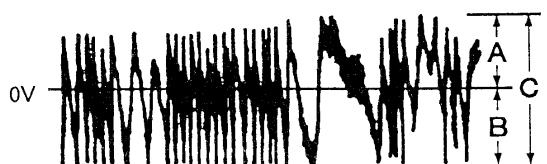
Connection:



Adjusting Method:

1. Set the servo mode of the test mode (Mode: 000).
2. Press the ► key, and set the CD playback adjustment mode (Mode: 050) using the VOLUME + and – keys.
3. Press the ◀◀ and ▶▶ keys and move the optical pickup to the center circumference.
4. Load a CD test disc (TDYS-1).
5. When the ► key is pressed, the CD playback EF balance adjustment mode (Mode: 052) will be set after CD focus search ON (Mode: 051).
6. Press the ■ key to perform automatic adjustment, and check that the traverse waveform is symmetrical at the top and bottom.

(Traverse Waveform)

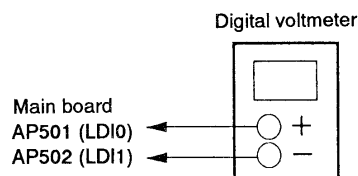
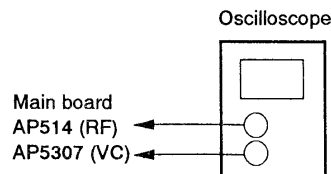


Specification: $A=B$, $C \geq 2.0 \text{ Vp-p}$

7. Check that the traverse level at this time is above 2.0 Vp-p .
8. Press the ■ key.
9. Exit the test mode.

[CD RF Level Check]

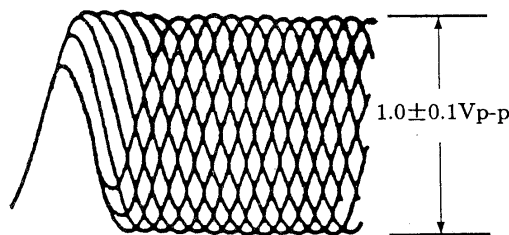
Connection:



Adjusting Method:

1. Set the servo mode of the test mode (Mode: 000).
2. Press the ► key, and set the CD playback adjustment mode (Mode: 050) using the VOLUME + and – keys.
3. Press the ◀◀ and ▶▶ keys and move the optical pickup to the center circumference.
4. Load a CD test disc (TDYS-1).
5. When the ► key is pressed, the CD EF balance adjustment mode (Mode: 052) will be set after CD focus search ON (Mode: 051).
6. When the ► key is pressed, the ABCD level adjustment mode (Mode: 053) is set.
7. Press the ■ key to perform automatic adjustment, and check that the RF level is $1.0 \pm 0.1 \text{ Vp-p}$.

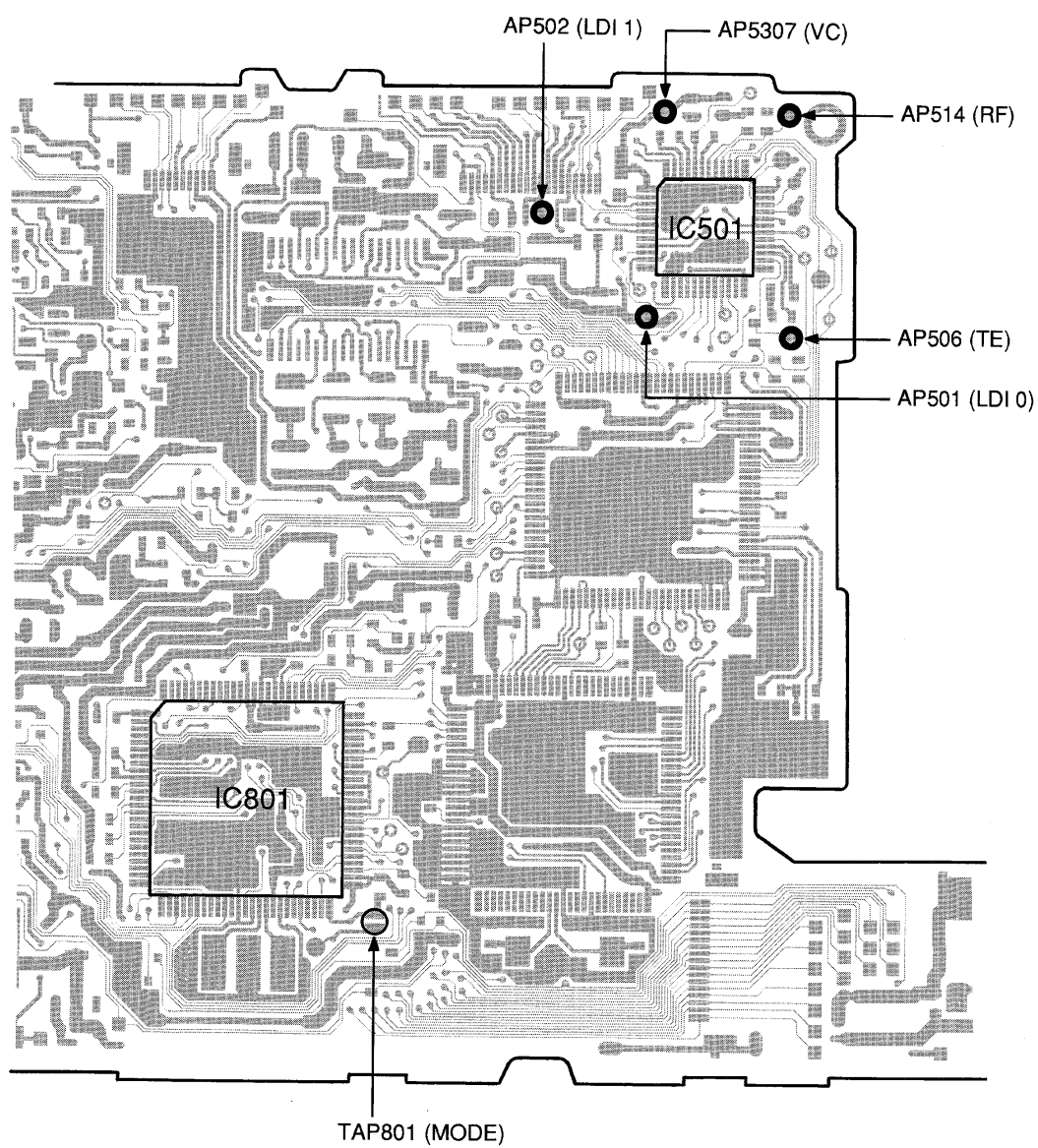
(RF Waveform)



8. Check that the voltage between AP501 (LDI0) and AP502 (LDI1) at this time is below 61 mV.
9. Press the ■ key.
10. Exit the test mode.

— Adjustment location —

【MAIN BOARD】 (SIDE B)



SECTION 5

IC PIN FUNCTIONS

• IC501 RF Amplifier (CXA1981AR)

Pin No.	Pin Name	I/O	Function
1	VC	O	Middle point voltage (+1.4V) generation output pin
2 to 7	A to F	I	Input of signal from optical block detector
8	FI	I	F operation amplifier input
9	FO	O	F operation amplifier output
10	PD	I	Front monitor. Connected to photo diode
11	APCREP	I	Input pin for setting laser power
12	TEMPI	I	Temperature sensor connection pin (Opened)
13	GND	—	Ground pin
14	AAPC	O	APC LD amplifier output pin
15	DAPC	O	Not used (Opened)
16	TEMPR	O	Temperature sensor reference voltage output pin (Opened)
17	XRST	I	Input of reset signal from system controller (IC801). Reset: "L"
18	SWDT	I	Input of write data signal from system controller (IC801)
19	SCLK	I	Input of clock signal from system controller (IC801)
20	XLAT	I	Input of latch signal from system controller (IC801)
21	VREF	O	Reference voltage output. Not used in this unit (Opened)
22	TENV	O	Not used (Opened)
23	THLD	I	Not used (Opened)
24	VCC	—	Power supply pin (+2.8V)
25	TFIL	I	Not used (Opened)
26	TE	O	Output of tracking error signal to CXD2535BR (IC503)
27	TLB	I	Input pin of add signal to tracking error
28	CSLED	I	Sled error LPF pin
29	SE	O	Output of sled error signal to CXD2535BR (IC503)
30	ADFM	O	ADIP FM signal output
31	ADIN	I	Inputs ADIP FM signal by AC coupling
32	ADAGC	I	Connection pin of external capacitor for ADIP AGC
33	ADFG	O	Output of ADIP dual FM signal to CXD2535BR (IC503) (22.05 kHz \pm 1 kHz)
34	AUX	O	Output of auxiliary signal to CXD2535BR (IC503)
35	FE	O	Output of focus error signal to CXD2535BR (IC503)
36	FLB	I	Not used (Opened)
37	ABCD	O	Output of light amount signal to CXD2535BR (IC503)
38	BOTM	O	Output of bottom hold signal of light amount signal to CXD2535BR (IC503)
39	PEAK	O	Output of peak hold signal of light amount signal to CXD2535BR (IC503)
40	RFAGC	I	Connection pin of RF AGC circuit external capacitor
41	RF	O	Output of playback EFM RF signal to CXD2535BR (IC503)
42	ISSET	I	Internal circuit constant setting pin. 22 kHz BPF center frequency
43	AGCI	I	Inputs RF signal by AC coupling
44	RFO	O	Output pin of RF signal
45	MORFI	I	Inputs MO RF signal by AC coupling
46	MORFO	O	Output pin of MO RF signal
47, 48	I, J	I	Input of signal from optical block detector

• IC503 Digital signal processor, digital servo processor (CXD2535BR-1)

Pin No.	Pin Name	I/O	Function
1	FS256	O	11.2896 MHz clock output (MCLK)
2	FOK	O	Output of FOK signal to system controller (IC801) Outputs "H" when focus is set
3	DFCT	O	Outputs defect ON/OFF switching signal to CXD2536R (IC601)
4	SHCK	O	Outputs track jump detection signal to system controller (Not used)
5	SHCKEN	I	Track jump detection enable input (Fixed at "L")
6	WRPWR	I	Inputs laser power switching signal from system controller (IC801) (Fixed at "L")
7	DIRC	I	Not used (Fixed at "H")
8	SWDT	I	Inputs write data signal from system controller (IC801)
9	SCLK	I	Inputs serial clock signal from system controller (IC801)
10	XLAT	I	Inputs serial latch signal from system controller (IC801)
11	SRDT	O	Outputs write data signal to system controller (IC801)
12	SENS	O (3)	Outputs internal status (SENSE) to system controller (IC801)
13	ADSY	O	ADIP sync signal output (Opened)
14	SQSY	O	Output subcode Q sync (SCOR) to system controller (IC801) Outputs "L" every 13.3 msec. Outputs "H" at all most mostly
15	DQSY	O	Outputs digital-in U-bit CD format subcode Q sync (SCOR) to system controller (IC801). Outputs "L" every 13.3 msec Outputs "H" at all most mostly (Not used)
16	XRST	I	Inputs reset signal from system controller (IC801). Reset: "L"
17	SBOCK	I	Test input (Fixed at "L")
18	SBODT	O	Not used (Opened)
19	SBIDT	I	Test input (Fixed at "L")
20	DOUT	O	Digital audio signal output pin (For optical output) (Opened)
21	DIN	I	Digital audio signal input pin (For optical input) (Fixed at "L")
22	FMCK	O	ADIP FM demodulation clock signal output (Not used)
23	ATER	O	ADIP CRC flag output. "H":Error (Not used)
24	REC	I	Input of recording/playback switching signal from system controller (IC601) Playback: "L"
25	VSS0	—	Ground pin (Digital)
26	DOVF	I	Digital audio output validity flag input pin (Fixed at "L")
27	DODT	I	Input pin of 16bit data for digital audio output from CXD2536AR (IC601)
28	DIDT	O	Output pin of 16bit data for digital audio input to CXD2536AR (IC601)
29	DTI	I	Input pin of recording audio data signal from CXD2536AR (IC601)
30	DTO	O (3)	Output pin of playback audio data signal to CXD2536AR (IC601)
31	C2PO	O	Outputs C2PO signal to CXD2536AR (IC601). (Output indicating data error status) Playback: C2PO ("H").
32	BCK	O	Outputs bit clock signal (2.8224 MHz) to CXD2536AR (IC601) (MCLK)
33	LRCK	O	Outputs L/R clock signal (44.1 kHz) to CXD2536AR (IC601) (MCLK)
34	XTAO	O	System clock (512 Fs=22.5792 MHz) signal output (Opened)
35	XTAI	I	Input of system clock (512Fs=22.5792 MHz) signal input from CXD2536AR (IC601)
36	MCLK	O	MCLK clock (22.5792 MHz) signal output (Opened)
37	XBCK	O	Pin 32 (BCK) inversion output (Opened)
38	VDD0	—	Power supply pin (+2.8V) (Digital)
39	WDCK	O	WDCK clock (88.2 kHz) signal output (MCL) (Opened)
40	RFCK	O	RFCK clock (7.35 kHz) signal output (MCLK) (Not used)

Pin No.	Pin Name	I/O	Function
41	WFCK	O	WFCK clock (7.35 kHz) signal output (Playback: EFM decoder PLL. Recording: EFM encoder PLL) (Not used)
42	GTO	O	"H": Opens playback EFM frame sync protection window
43	GFS	O	"H": Playback EFM sync and interpolation protection timing match (Not used)
44	XPLCK	O	EFM decoder PLL clock output (98 Fs=4.3218 MHz) Falling edge and EFM signal edge match (Not used)
45	EFMO	O	EFM signal output (Playback)
46	RAOF	O	Internal RAM overflow detection signal output (decoder monitor output) Outputs "H" when the disc rotation exceeds $\pm 4F$ jitter margin during playback (Not used)
47	MVCI	I	Digital-in PLL oscillation input (Fixed at "L")
48	TEST2	I	Test pin (Fixed at "L")
49	DIPD	O (3)	Digital-in PLL phase comparison output Internal VCO: (Frequency: Low \rightarrow "H"). External VCO: (Frequency: Low \rightarrow "L") (Opened)
50	VSS1	—	Ground pin (Digital)
51	DICV	I (A)	Digital-in PLL internal VCO control voltage input (Fixed at "H")
52	DIFI	I (A)	Filter input when digital-in PLL internal VCO is used (Fixed at "H")
53	DIFO	O (A)	Filter output when digital-in PLL internal VCO is used (Opened)
54	AVD1	—	Power supply pin (+2.8V) (Analog)
55	ASYO	O	Playback EFM full-swing output (L=VSS, H=VDD)
56	ASYI	I (A)	Playback EFM asymmetry compare voltage input
57	BIAS	I (A)	Playback EFM asymmetry circuit constant current input
58	RFI	I (A)	Inputs playback EFM RF signal from CXA1981AR (IC501)
59	AVS1	—	Ground pin (Analog)
60	CLTV	I (A)	Decoder PLL master clock PLL VCO control voltage input
61	PCO	O (3)	Decoder PLL master clock PLL phase comparison output
62	FILI	I (A)	Decoder PLL master clock PLL filter input
63	FILO	O (3)	Decoder PLL master clock PLL filter output
64	PEAK	I (A)	Inputs peak hold signal for light amount signal from CXA1981AR (IC501)
65	BOTM	I (A)	Inputs bottom hold signal for light amount signal from CXA1981AR (IC501)
66	ABCD	I (A)	Light amount signal from CXA1981AR (IC501)
67	FE	I (A)	Input of focus error signal from CXA1981AR (IC501)
68	AUX	I (A)	Input of auxiliary signal from CXA1981AR (IC501)
69	VC	I (A)	Input of middle point voltage (+1.4V) from CXA1981AR (IC501)
70	ADIO	O (A)	A/D converter input signal monitor output (Opened)
71	TEST3	I (A)	Test input (Fixed at "L")
72	AVD2	—	Power supply pin (+2.8V) (Analog)
73	ADRT	I (A)	A/D converter operation range upper limit voltage input (Fixed at "H")
74	ADRB	I (A)	A/D converter operation range lower limit voltage input (Fixed at "L")
75	AVS2	—	Ground pin (Analog)
76	SE	I (A)	Input of sled error signal from CXA1981AR (IC501)
77	TE	I (A)	Input of tracking error signal from CXD1981AR (IC501)
78	AUX2	I (A)	Auxiliary input pin 2
79	DCHG	I (A)	Connected to GND
80	APC	I (A)	Laser APC input (Fixed at "L")

Pin No.	Pin Name	I/O	Function
81	TEST	I	Test pin (Fixed at "L")
82	ADFG	I	Input of ADIP dual FM signal from CXA1981AR (IC501) (22.05 kHz \pm 1 kHz) (TTL Schmidt input)
83	TS25	I	Test pin (Fixed at "L")
84	LDDR	O	Laser APC signal output
85	TRDR	O	Tracking servo drive signal output (-)
86	TFDR	O	Tracking servo drive signal output (+)
87	FFDR	O	Focus servo drive signal output (+)
88	VDD1	-	Power supply pin (+2.8V) (Digital)
89	FRDR	O	Focus servo drive signal output (-)
90	FS4	O	176.4 kHz clock signal output (MCLK)
91	SRDR	O	Sled servo drive signal output (-)
92	SFDR	O	Sled servo drive signal output (+)
93	SPRD	O	Spindle servo drive signal output (-)
94	SPFD	O	Spindle servo drive signal output (+)
95	DCLO	O	Not used
96	DCLI	I	Not used
97	XDCL	O	Not used
98	OFTRK	O	Off track signal output (Not used)
99	COUT	O	Traverse count signal output
100	VSS2	-	Ground pin (Digital)

* (3) of I/O is 3-state output, (A) is analog output.

• **IC601 ATRAC Encoder/Decoder (CXD2536AR)**

Pin No.	Pin Name	I/O	Function
1	VDD	—	Power supply pin (+2.8V)
2	SWDT	I	Input of write data signal from system controller (IC801)
3	SCK	I	Input of serial clock signal from system controller (IC801)
4	XLAT	I	Input of serial latch signal from system controller (IC801)
5	SRDT	O/Z	Output of read data signal to system controller (IC801)
6	SENSE	O/Z	Output of internal status (SENSE) to system controller (IC801)
7	SCMD0	I	Input of serial command control mode from system controller (IC801) (Fixed at "H")
8	SCMD1	I	Input of serial command control mode from system controller (IC801) (Fixed at "H")
9	XINT	O	Output of interrupt status to system controller (IC801) (Opened)
10	RCPB	I	Recording/playback switching input (Fixed at "L")
11	WRMN	I	Input of write/monitor mode switching signal from system controller (Fixed at "L")
12	TX	I	Input of write data transmission timing from system controller (IC801) Also used as magnetic field head ON/OFF output (Fixed at "L")
13	VSS	—	Ground pin
14	SICK	I	Chip reservation pin (Fixed at "H")
15	IDSL	I	Chip reservation pin (Fixed at "H")
16	XILT	I	Chip reservation pin (Fixed at "H")
17	XRST	I	Input of reset signal from system controller (IC801). Reset: "L"
18 to 21	TS0 to TS3	I	Test pin (Fixed at "L")
22	EXIR	I	Chip reservation pin (Fixed at "L")
23	SASL	I	Block selection in single use. "L": ATRAC. "H": RAM controller (Fixed at "L")
24	SNGLE	I	Normally fixed at "L". Fixed at "H" when used as ATRAC or RAM controller for single (Fixed at "L")
25	VSS	—	Ground pin
26	AIRCPB	O	Output pin of ATRAC and external audio block recording/playback mode signal (Opened)
27	XRQ	I/O	ATRAC I/F XRQ signal input/output pin (Opened)
28	ADTO	I/O	ATRAC decode data signal input/output pin (Opened)
29	ADTI	I/O	ATRAC encode data signal input/output (Opened)
30	XALT	I/O	ATRAC I/F XALT signal input/output pin (Opened)
31	ACK	I/O	ATRAC I/F ACK signal input/output pin (Opened)
32	AC2	I/O	ATRAC I/F error data signal input/output pin (Opened)
33	LCHST	I/O	ATRAC I/F Lch start data signal input/output pin (Opened)
34	EXE	I/O	ATRAC I/F EXE signal input/output pin (Opened)
35	MUTE	I/O	ATRAC I/F MUTE signal input/output pin (Opened)
36	OSCO	O	Clock output (45 MHz)
37	OSCI	I	Clock input (45 MHz)
38	VSS	—	Ground pin
39	ATT	I/O	ATRAC I/F ATT signal input/output pin (Opened)
40	F86	O	ATRAC block 11.6 msec timing signal output pin (Opened)
41	DOUT	O	Output of monitor/decode audio data signal to D/A converter (IC304)
42	ADIN	I	(Fixed at "L")
43	ABCK	O	(Opened)
44	ALRCK	O	Output of L/R clock to D/A converter (IC304)
45 to 47	SA2 to SA0	O	Address signal output (Opened)

Pin No.	Pin Name	I/O	Function
48, 49	A11, A10	O	Address signal output (Opened)
50	VSS	—	Ground pin
51	VDD	—	Power supply pin (+2.8V)
52 to 55	A03 to A00	O	Output of address signal to RAM (IC602)
56 to 60	A04 to A08	O	Output of address signal to RAM (IC602)
61	XOE	O	Output of output enable control signal to RAM (IC602)
62	XCAS	O	Output of column address strobe signal to RAM (IC602)
63	VSS	—	Ground pin
64	XCS	O	Output of chip select signal to RAM (IC602)
65	A09	O	Output of address signal to RAM (IC602)
66	XRAS	O	Output of row address strobe signal to RAM (IC602)
67	XWE	O	Output of read/write control signal to RAM (IC602)
68, 69	D1, D0	I/O	Input/output pin of data signal to/from RAM (IC602)
70, 71	D2, D3	I/O	Input/output pin of data signal to/from RAM (IC602)
72 to 74	D4 to D6	I/O	Data signal input/output pin (Opened)
75	VSS	—	Ground pin
76	D7	I/O	Data signal input/output pin (Opened)
77	ERR	I/O	Input/output pin of error (C2PO) data to external RAM (Opened)
78	EXTC2R	I	External RAM selection input for error data writing ("H": External RAM) (Fixed at "L")
79	BUSY	O	RAM access BUSY signal output (Opened)
80	EMP	O	EMPTY or immediately before FULL of ATRAC data (When DSC=ASC+1: "H") (Opened)
81	FUL	O	FULL or immediately before EMPTY of ATRAC data (When ASC=DSC+1: "H") (Opened)
82	EQL	O	ATRAC data EMPTY (When DSC=ASC: "H") (Opened)
83	MDLK	O	Indicates recording/playback data main/sub ("H": Sub, Linking: "L": Main) (Opened)
84	CPSY	O	Interpolation sync signal output (Opened)
85	CTMD0	O	DSC counter mode output (Opened)
86	CTMD1	O	DSC counter mode output (Opened)
87	SPO	O	Output of system clock (512Fs=22.5792 MHz) signal to CXD2535BR (IC503)
88	VSS	—	Ground pin
89	MDSY	O	Main data sync detection signal output (Opened)
90	LRCK	I	Input of L/R clock signal from CXD2535BR (IC503) (44.1 kHz)
91	BCK	I	Input of bit clock signal from CXD2535BR (IC503) (2.8224 MHz)
92	C2PO	I	Input of C2PO signal from CXD2535BR (IC503) (Shows data error status). Playback: C2PO ("H").
93	DATA	I/O	PLayback: Input of playback audio data signal from CXD2535BR (IC503)
94	DIDT	I	Input of digital audio input 16-bit data from CXD2535BR (IC503)
95	DODT	O	Output of digital audio output 16-bit data to CXD2535BR (IC503)
96	DIRCPB	O	Disc drive and EFM encoder/decoder playback mode output
97	MIN	I	Input of defect ON/OFF switching signal from CXD2535BR (IC503)
98	SPOSL	I	Pin 87 (SPO) input/output switching input pin ("L":IN. "H":OUT) (Fixed at "H")
99	MCK	O	RAM controller internal master clock output pin (Opened)
100	VSS	—	Ground pin

• IC801 System Control (CXP81960M-612R)

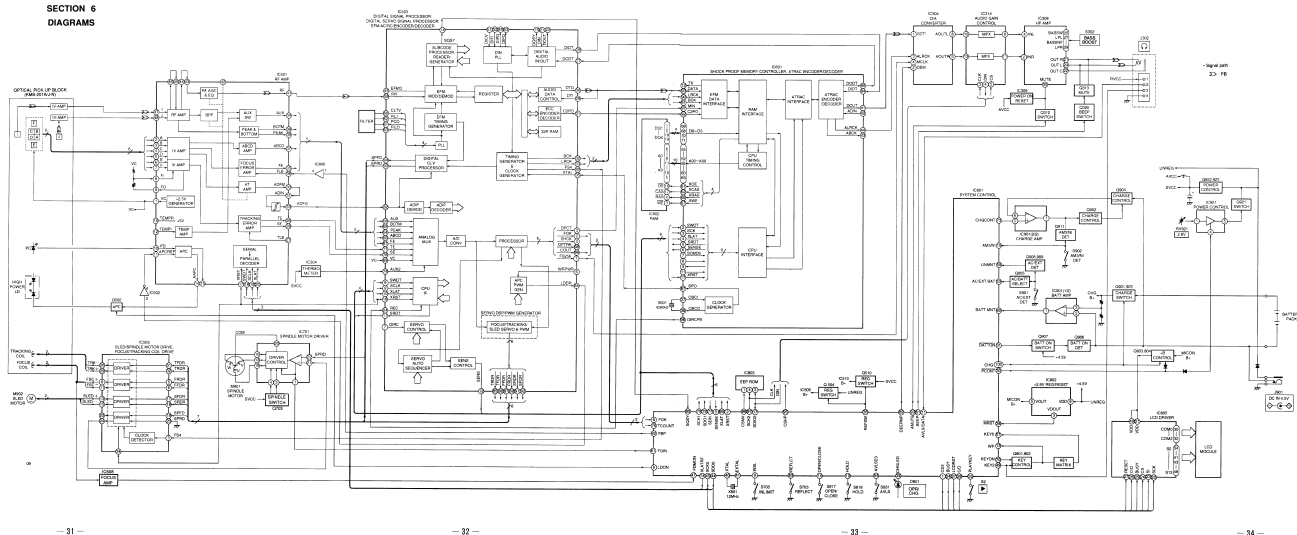
Pin No.	Pin Name	I/O	Function
1	CS3	O	Chip select output to LCD driver (IC805)
2	XRST	O	Reset output. "L": Reset
3	—	—	} (Opened)
4	—	—	
5	SENSE	I	Internal status (SENSE) input
6	LDON	O	Laser ON signal. "H": ON
7	SHOCK	I	(Fixed at "L")
8	FOK	I	Focus OK signal from CXD2535BR (IC503)
9	INLS	I	Detecting switch for internal circuit of sledding. "L": Internal circuit
10	PROTECT	I	Disc Write Protect switch. "H": Protect
11	AVLSI/DATA	O	LCD data output to remote control
12	HOLD	I	Hold switch input (This unit). "L": Hold
13	WP	I	Wake-up signal input from remote control key and this unit key
14	OPEN/CLOSE	I	Upper cover open/close detection. "L": Close
15	AM3/NI	I	Detect whether the internal battery is a dry battery or a Ni/MH charging battery. Ni/MH="L"
16	—	I	(Opened)
17	SDIO2	I/O	Serial data input/output
18 to 23	—	O	(Opened)
24	BUSY	I	Authorize the output of serial data to IC805. Inhibition="L"
25, 26	—	O	(Opened)
27	LCD RST	O	Reset output to LCD driver (IC805)
28	C/D	O	Data/Command to LCD driver (IC805) Data="L"
29	—	O	(Opened)
30	PCONT	O	Power Control output. "L"=ON
31	BATTON	O	Battery operation "L" output
32	CHG LED	O	CHARGE display LED control output. "L"=ON
33	—	O	} (Opened)
34	—	O	
35	RFSW	O	Power control output to RF amplifier (IC501)
36	—	O	(Opened)
37	MP	—	Microprocessor mode input (Fixed at "L")
38	MRST	I	Microprocessor reset input
39	VSS	—	GND
40	XTAL	—	} System clock (12 MHz)
41	EXTAL	—	
42	CS	—	Chip Select input (Connected to +2.8V)
43	SDI0	I	Not used (Fixed at "L")
44	SDO0	O	Serial data output
45	SCK0	O	Serial clock output
46	MODE	I	SET & TEST MODE select input
47	FDMON	I	Focus coil position monitor input
48	—	O	(Opened)
49	KEY2	I	Remote control key input
50	AVSS	—	A/D converter ground terminal
51	AVREF	—	A/D converter reference voltage input
52	AVDD	—	A/D converter power supply terminal

Pin No.	Pin Name	I/O	Function
53	AC/EXTBAT	I	AC adaptor or EXT battery detection input. "L": EXT battery
54	AVLSE3	I	AVLS switch input "L"=ON
55	PLAYKEY	I	PLAY key input
56	RECKEY	I	(Fixed at "H")
57	KEY0	I	} Key input
58	KEY1	I	
59	UNMNT	I	UNREG voltage monitor
60	BATTMNT	I	Battery voltage monitor for power supplies from DC IN
61	FGIN	I	FG input from monitor driver (IC701)
62	SLA	I	} Dial signal input (Fixed at "L")
63	SLB	I	
64	INTSW	I	INITIAL switch input (Fixed at "H")
65	—	I	(Fixed at "L")
66	JACKDET	I	Jack detection input (Fixed at "H")
67	—	I	(Fixed at "L")
68	MICDET	I	MIC jack detection (Fixed at "L")
69	XLAT	O	Latch output
70	KEYON	O	SLEEP="L", OPERATION: "H"
71	—	O	} Opened
72	—	O	
73	CHGCONT	O	Charge current control output
74	XLATRF	O	Latch output to RF amplifier (IC501)
75	DQSY	I	(Opened)
76	TCOUNT	I	Traverse count signal input
77	SDI1	I	Serial data input
78	SDO1	O	Serial data output
79	SCK1	O	Serial clock output
80	SQSY	I	SUB-Q/ADIP SYNC input
81	BEEP	O	BEEP sound output control. "H"=BEEP sound out
82	FBP	O	Focus Bias voltage control output
83	REFLCT	I	CD/MO discrimination switch
84	TEX	—	Not used (Fixed at "L")
85	XT	—	Opened
86	VSS	—	GND
87	VDD	—	Power supply pin (+2.8V)
88	NC	—	Not used (Fixed at "H")
89	DEEMP	O	De-emphasis control. "L": De-emphasis ON
90 to 92	—	O	(Opened)
93	AMUTE	O	Analog MUTE control. "L"=Mute
94	—	O	(Opened)
95	CSHP	O	} Chip select output
96	CSNV	O	
97	SCK2	O	Serial clock output
98	—	O	} (Opened)
99	—	O	
100	CHG	O	Charge control. "H": Charge

SECTION 6

DIAGRAMS

6-1. BLOCK DIAGRAM

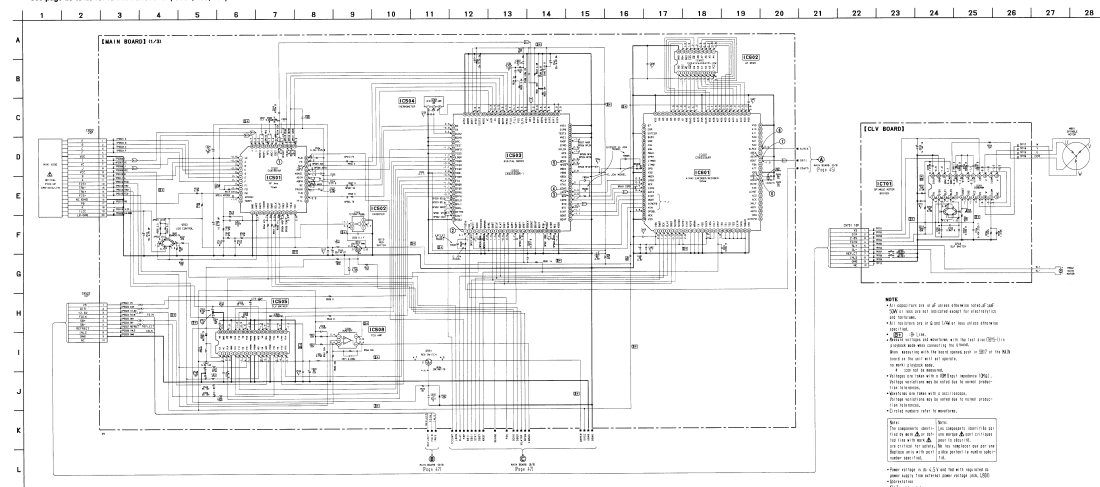


Note:

- : parts extracted from the component side.
- : parts extracted from the conductor side.
- : Through hole.
- △ : internal component.
- ▨ : Patterns from the side which enable seeing.
(The other layer's patterns are not indicated.)

Abbreviation
JEU : Tourist model.

6-3. SCHEMATIC DIAGRAM — RF/SERVO SECTION —
 • See page 25 to 28 for IC Pin Functions. (IC501, 503, 501)



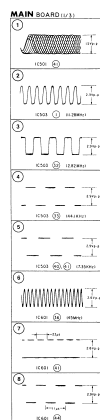
— 39 —

— 40 —

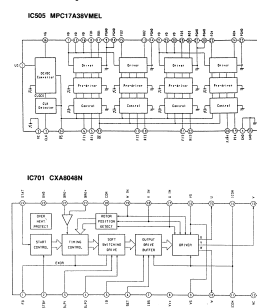
— 41 —

MZ-E3

• Waveforms

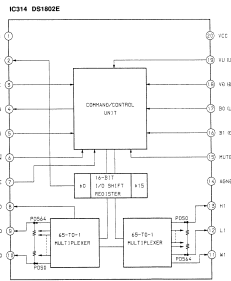
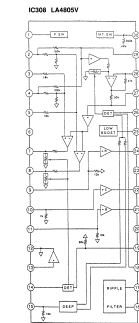
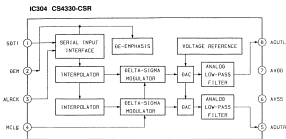


• IC Block Diagram



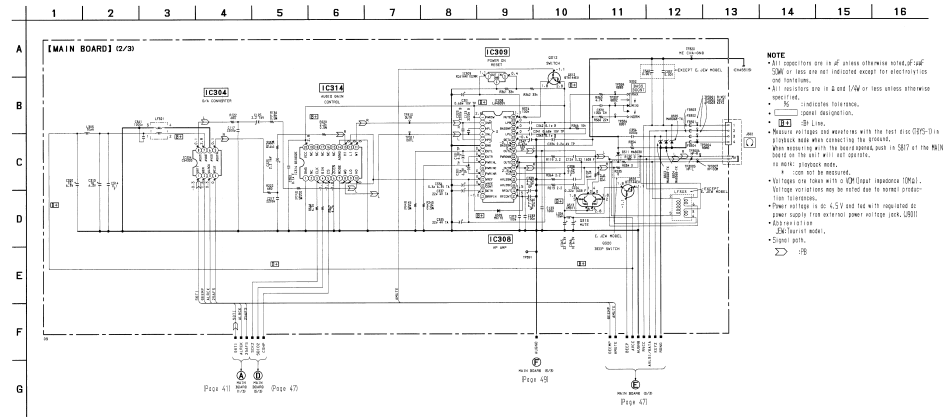
— 42 —

• IC Block Diagrams



— 43 —

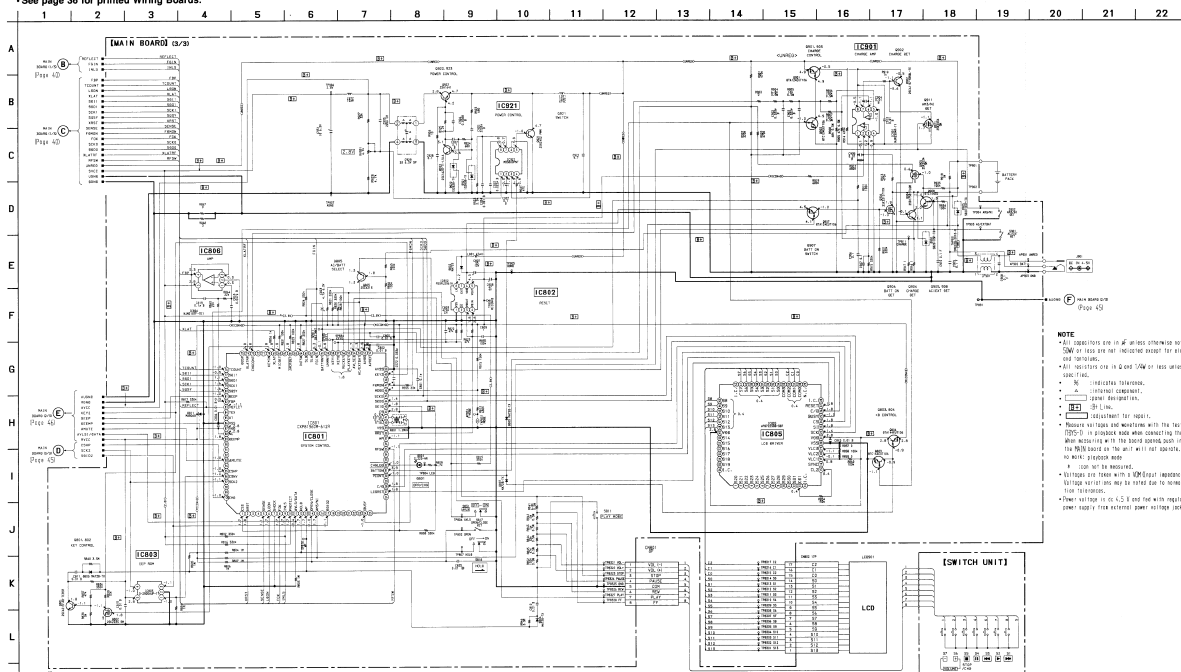
0-4. SCHEMATIC DIAGRAM — AUDIO SECTION —
• See page 36 for printed Wiring Boards.



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• See page 29 for IC Pin Functions. (IC801)

• See page 36 for printed Wiring Boards.





SECTION 7


EXPLODED VIEWS

NOTE:

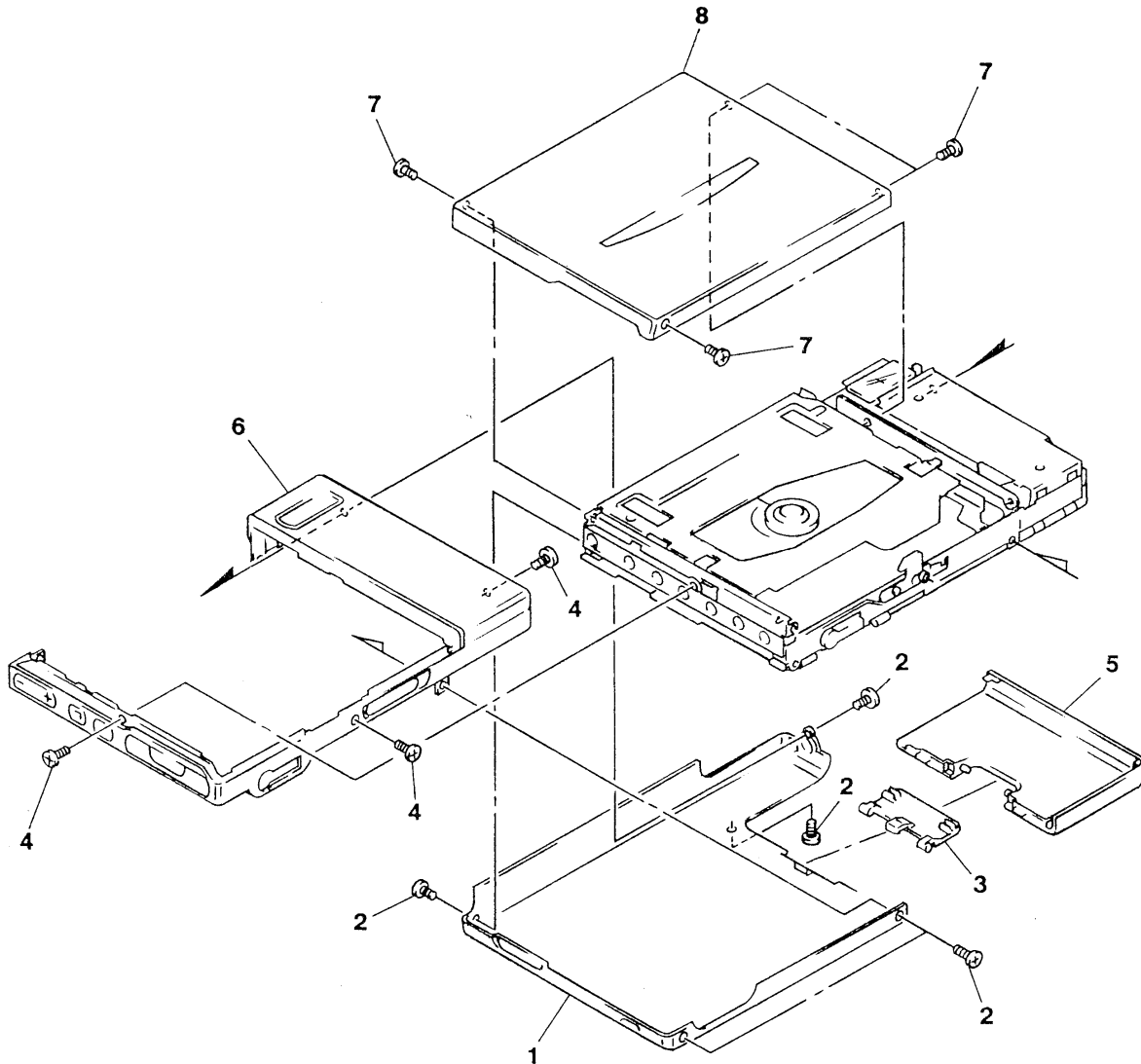
- Items marked “*” are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.

- Abbreviation
CND : Canadian model
AUS : Australian model
JEW : Tourist model

The components identified by mark  or dotted line with mark  are critical for safety. Replace only with part number specified.

Les composants identifiés par une marque  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

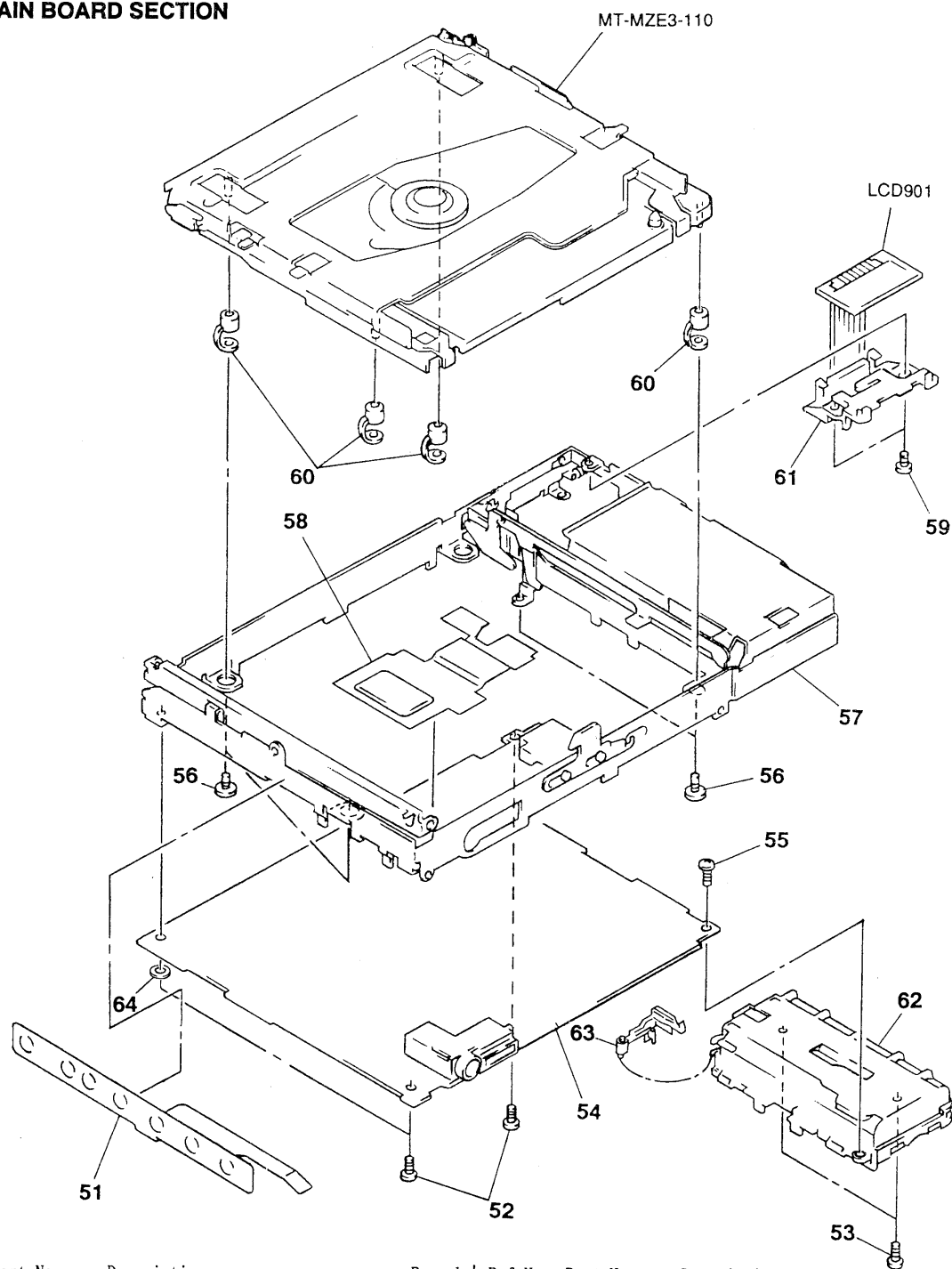
7-1. CABINET SECTION



Ref. No.	Part No.	Description
1	X-4945-826-1	PANEL ASSY, BOTTOM
2	3-363-220-81	SCREW (M1.4)
3	4-972-499-01	HINGE (BATTERY CASE LID)
4	4-963-883-31	SCREW (M1.4), PRECISION PAN
5	4-972-498-01	LID, BATTERY CASE

Ref. No.	Part No.	Description	Remark
6	X-4945-785-6	STRIP ASSY, ORNAMENTAL	
7	3-363-220-61	SCREW (M1.4)	
8	X-4945-827-1	PANEL ASSY, UPPER	

7-2. MAIN BOARD SECTION



Ref.No.	Part No.	Description
---------	----------	-------------

51	1-473-078-11	SW 3 UNIT
52	3-335-797-01	SCREW (M1.4X2), TOOTHED LOCK
53	3-363-220-81	SCREW (M1.4)
54	A-3276-678-A	MAIN BOARD, COMPLETE (E, JEW)
54	A-3276-745-A	MAIN BOARD, COMPLETE (US, CND)
54	A-3276-746-A	MAIN BOARD, COMPLETE (AEP, UK, AUS)
55	3-672-586-11	SCREW (1.4X2.5), TAPPING
56	4-963-924-01	SCREW (DAMPER)
57	X-4945-782-1	CHASSIS ASSY, SET

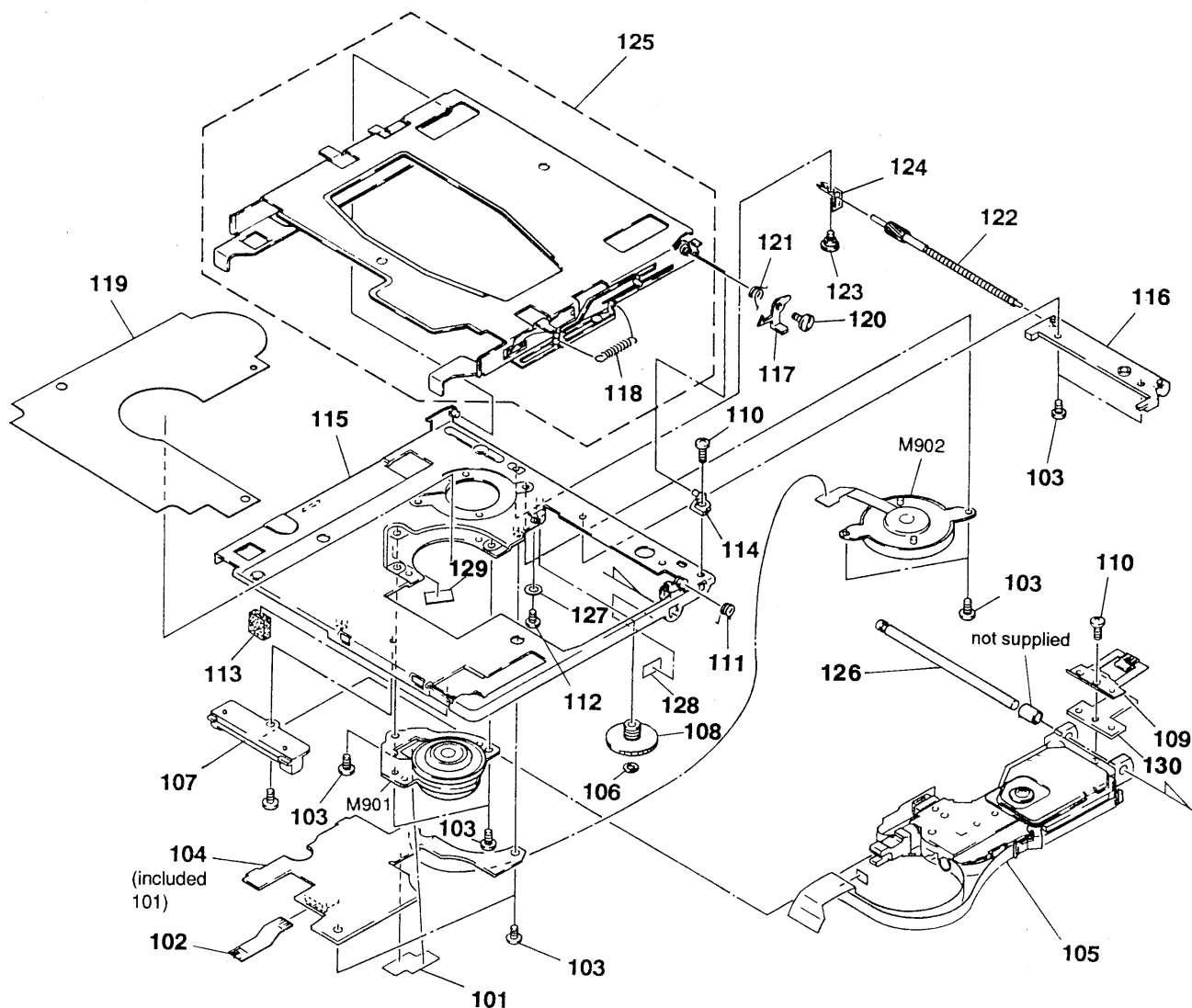
Remark

Ref.No.	Part No.	Description
---------	----------	-------------

58	4-972-504-01	PLATE, BLIND
59	3-704-197-13	SCREW (M1.4X2.0), LOCKING
60	4-972-503-01	DAMPER (E3)
* 61	4-972-502-01	HOLDER (LCD)
62	X-4945-783-1	CASE ASSY, BATTERY
63	X-4945-789-1	LEVER (NI-MH) ASSY, DETECTION
64	3-563-124-11	WASHER, RATILE ABSORBER
LCD901	1-810-789-11	LCD MODULE

Remark

7-3. MECHANISM DECK SECTION (MT-MZE3-110)



The components identified by mark ▲ or dotted line with mark ▲ are critical for safety. Replace only with part number specified.

Les composants identifiés par une marque ▲ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
101	1-651-017-11	CLV FLEXIBLE BOARD		117	4-964-058-01	LEVER, LOCK	
102	1-651-650-11	MD FLEXIBLE BOARD		118	4-965-534-01	SPRING (POWER TENSION), TENSION	
103	4-963-883-31	SCREW (M1.4), PRECISION PAN		119	4-965-205-11	COVER, MD	
104	A-3276-723-A	CLV BOARD, COMPLETE		120	4-964-649-01	SCREW (M1.2X1.5)	
▲ 105	8-583-010-41	OPTICAL PICK-UP BLOCK KMS-201A/J-N		121	4-964-072-01	SPRING, TORSION	
106	4-965-893-01	WASHER, GEAR (A) STOPPER		122	A-3300-317-A	SCREW BLOCK ASSY, LEAD	
* 107	A-3300-316-A	BRACKET BLOCK ASSY, SUB		123	4-967-083-01	SCREW (THRUST SPRING)	
108	4-964-065-01	GEAR (A)		124	4-964-059-01	SPRING, THRUST	
109	4-964-061-01	SPRING (OUTSERT), RACK		125	X-4945-548-1	HOLDER ASSY	
110	3-704-197-03	SCREW (M1.4X1.6), LOCKING		* 126	4-964-068-01	SHAFT (GUIDE A)	
111	4-964-071-01	SPRING, TORSION		127	4-965-865-21	WASHER (LUMILER)	
112	4-964-918-01	SCREW (M1.4X2)		128	4-974-807-02	SPACER (CHASSIS)	
113	4-965-214-01	CUSHION		129	3-309-595-11	SHEET, INSULATING, PACK	
114	4-964-062-01	GUIDE, HOLDER		130	4-975-962-01	SPACER (RACK SPRING)	
115	X-4945-564-1	CHASSIS ASSY		M901	1-698-542-11	MOTOR (SPINDLE)	
116	4-964-063-01	BRACKET, LEAD		M902	1-698-315-11	MOTOR, DC (SLED)	

SECTION 8 ELECTRICAL PARTS LIST

CLV MAIN

NOTE:

The components identified by mark Δ or dotted line with mark Δ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque Δ sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

When indicating parts by reference number, please include the board name.

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- RESISTORS
All resistors are in ohms
METAL: Metal-film resistor
METAL OXIDE: Metal Oxide-film resistor
F : nonflammable

- SEMICONDUCTORS
In each case, u: μ , for example:
uA...: μ A..., uPA...: μ PA..., uPB...: μ PB...,
uPC...: μ PC..., uPD...: μ PD...
- CAPACITORS
uF : μ F
- COILS
uH : μ H
- Abbreviation
CND : Canadian model
AUS : Australian model
JEW : Tourist model

Ref.No.	Part No.	Description	Remark	Ref.No.	Part No.	Description	Remark
	A-3276-723-A	CLV BOARD, COMPLETE *****			A-3276-678-A	MAIN BOARD, COMPLETE (E, JEW) *****	
	1-651-017-11	CLV FLEXIBLE BOARD < CAPACITOR >			A-3276-745-A	MAIN BOARD, COMPLETE (US, CND) *****	
C701	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V			A-3276-746-A	MAIN BOARD, COMPLETE (AEP, UK, AUS) *****	
C702	1-165-176-11	CERAMIC CHIP 0.047uF 10% 16V			4-017-441-01	CUSHION (B) < CAPACITOR >	
C703	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V		C101	1-135-337-11	TANTAL. CHIP 1uF 20% 6.3V	
C704	1-164-005-11	CERAMIC CHIP 0.47uF 25V		C117	1-162-966-11	CERAMIC CHIP 0.0022uF 10% 50V	
C705	1-162-967-11	CERAMIC CHIP 0.0033uF 10% 50V		C123	1-162-966-11	CERAMIC CHIP 0.0022uF 10% 50V	
C706	1-162-967-11	CERAMIC CHIP 0.0033uF 10% 50V		C124	1-165-128-11	CERAMIC CHIP 0.22uF 16V	
C707	1-162-967-11	CERAMIC CHIP 0.0033uF 10% 50V		C125	1-107-971-11	TANTAL. CHIP 2.2uF 20% 16V	
C709	1-164-004-11	CERAMIC CHIP 0.1uF 10% 25V		C133	1-162-927-11	CERAMIC CHIP 100PF 5% 50V	
C710	1-135-091-00	TANTAL. CHIP 1uF 20% 16V		C201	1-135-337-11	TANTAL. CHIP 1uF 20% 6.3V	
C711	1-164-360-11	CERAMIC CHIP 0.1uF 16V		C217	1-162-966-11	CERAMIC CHIP 0.0022uF 10% 50V	
C712	1-162-927-11	CERAMIC CHIP 100PF 5% 50V		C223	1-162-966-11	CERAMIC CHIP 0.0022uF 10% 50V	
		< CONNECTOR >		C224	1-165-128-11	CERAMIC CHIP 0.22uF 16V	
CN701	1-691-348-11	CONNECTOR, FFC/FPC (ZIF) 10P		C225	1-107-971-11	TANTAL. CHIP 2.2uF 20% 16V	
		< IC >		C233	1-162-927-11	CERAMIC CHIP 100PF 5% 50V	
IC701	8-759-335-44	IC CXA8048N		C301	1-107-816-11	TANTAL. CHIP 0.68uF 20% 10V	
		< TRANSISTOR >		C314	1-164-360-11	CERAMIC CHIP 0.1uF 16V	
Q703	8-729-427-83	TRANSISTOR XP6501		C315	1-107-813-11	TANTAL. CHIP 10uF 20% 6.3V	
		< RESISTOR >		C320	1-107-813-11	TANTAL. CHIP 10uF 20% 6.3V	
R701	1-218-716-11	METAL CHIP 10K 0.50% 1/16W		C334	1-107-815-11	TANTAL. CHIP 2.2uF 20% 4V	
R702	1-218-716-11	METAL CHIP 10K 0.50% 1/16W		C335	1-104-847-11	TANTAL. CHIP 22uF 20% 4V	
R703	1-216-815-11	METAL CHIP 330 5% 1/16W		C336	1-135-180-21	TANTAL. CHIP 3.3uF 20% 6.3V	
R704	1-217-671-11	METAL CHIP 1 5% 1/10W		C337	1-104-847-11	TANTAL. CHIP 22uF 20% 4V	
R705	1-217-671-11	METAL CHIP 1 5% 1/10W		C338	1-164-505-11	CERAMIC CHIP 2.2uF 16V	
R706	1-216-833-11	METAL CHIP 10K 5% 1/16W		C339	1-107-812-11	TANTAL. CHIP 4.7uF 20% 6.3V	
R711	1-216-864-11	METAL CHIP 0 5% 1/16W		C340	1-107-812-11	TANTAL. CHIP 4.7uF 20% 6.3V	
		< SWITCH >		C341	1-107-816-11	TANTAL. CHIP 0.68uF 20% 10V	
S703	1-692-848-21	SWITCH, PUSH (1 KEY) (REFLECT)		C342	1-107-826-11	CERAMIC CHIP 0.1uF 10% 16V	
S705	1-572-467-31	SWITCH, PUSH (1 KEY) (INLIMIT)		C343	1-107-826-11	CERAMIC CHIP 0.1uF 10% 16V	
*****				C345	1-104-929-11	TANTAL. CHIP 22uF 20% 6.3V	
				C346	1-107-813-11	TANTAL. CHIP 10uF 20% 6.3V	
				C347	1-109-847-11	TANTAL. CHIP 0.47uF 20% 16V	
				C352	1-164-360-11	CERAMIC CHIP 0.1uF 16V	
				C356	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
C357	1-162-964-11	CERAMIC CHIP	0.001uF 10% 50V (US, CND, AEP, UK, AUS)	C576	1-164-360-11	CERAMIC CHIP	0.1uF 16V
C360	1-162-964-11	CERAMIC CHIP	0.001uF 10% 50V (US, CND, AEP, UK, AUS)	C580	1-162-965-11	CERAMIC CHIP	0.0015uF 10% 50V
C361	1-162-964-11	CERAMIC CHIP	0.001uF 10% 50V	C601	1-104-929-11	TANTAL. CHIP	22uF 20% 6.3V
C370	1-162-927-11	CERAMIC CHIP	100PF 5% 50V	C602	1-164-360-11	CERAMIC CHIP	0.1uF 16V
C373	1-162-927-11	CERAMIC CHIP	100PF 5% 50V	C603	1-164-360-11	CERAMIC CHIP	0.1uF 16V
C504	1-107-813-11	TANTAL. CHIP	10uF 20% 6.3V	C604	1-162-964-11	CERAMIC CHIP	0.001uF 10% 50V
C505	1-107-813-11	TANTAL. CHIP	10uF 20% 6.3V	C605	1-162-913-11	CERAMIC CHIP	8PF 0.5PF 50V
C507	1-107-826-11	CERAMIC CHIP	0.1uF 10% 16V	C606	1-162-913-11	CERAMIC CHIP	8PF 0.5PF 50V
C508	1-162-969-11	CERAMIC CHIP	0.0068uF 10% 25V	C607	1-164-360-11	CERAMIC CHIP	0.1uF 16V
C509	1-109-982-11	CERAMIC CHIP	1uF 10% 10V	C608	1-164-360-11	CERAMIC CHIP	0.1uF 16V
C510	1-162-968-11	CERAMIC CHIP	0.0047uF 10% 50V	C801	1-107-826-11	CERAMIC CHIP	0.1uF 10% 16V
C511	1-162-966-11	CERAMIC CHIP	0.0022uF 10% 50V	C802	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V
C512	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V	C803	1-164-315-11	CERAMIC CHIP	470PF 5% 50V
C513	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V	C805	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V
C514	1-107-813-11	TANTAL. CHIP	10uF 20% 6.3V	C806	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V
C517	1-164-360-11	CERAMIC CHIP	0.1uF 16V	C807	1-107-814-11	TANTAL. CHIP	33uF 20% 10V
C518	1-135-252-11	TANTAL. CHIP	22uF 20% 4V	C808	1-107-811-11	TANTAL. CHIP	47uF 20% 4V
C520	1-164-360-11	CERAMIC CHIP	0.1uF 16V	C809	1-164-346-11	CERAMIC CHIP	1uF 16V
C523	1-164-489-11	CERAMIC CHIP	0.22uF 10% 16V	C810	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V
C524	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V	C811	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V
C525	1-109-982-11	CERAMIC CHIP	1uF 10% 10V	C812	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V
C526	1-164-489-11	CERAMIC CHIP	0.22uF 10% 16V	C815	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V
C527	1-104-929-11	TANTAL. CHIP	22uF 20% 6.3V	C818	1-165-176-11	CERAMIC CHIP	0.047uF 10% 16V
C529	1-164-360-11	CERAMIC CHIP	0.1uF 16V	C819	1-107-826-11	CERAMIC CHIP	0.1uF 10% 16V
C530	1-164-360-11	CERAMIC CHIP	0.1uF 16V	C823	1-135-181-21	TANTAL. CHIP	4.7uF 20% 6.3V
C534	1-104-929-11	TANTAL. CHIP	22uF 20% 6.3V	C825	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V
C536	1-107-823-11	CERAMIC CHIP	0.47uF 10% 16V	C902	1-164-677-11	CERAMIC CHIP	0.033uF 10% 16V
C537	1-164-245-11	CERAMIC CHIP	0.015uF 10% 25V	C903	1-164-227-11	CERAMIC CHIP	0.022uF 10% 25V
C538	1-162-927-11	CERAMIC CHIP	100PF 5% 50V	C904	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V
C539	1-107-823-11	CERAMIC CHIP	0.47uF 10% 16V	C905	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V
C540	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V	C906	1-107-826-11	CERAMIC CHIP	0.1uF 10% 16V
C541	1-104-929-11	TANTAL. CHIP	22uF 20% 6.3V	C907	1-107-826-11	CERAMIC CHIP	0.1uF 10% 16V
C542	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V	C908	1-164-360-11	CERAMIC CHIP	0.1uF 16V
C544	1-164-360-11	CERAMIC CHIP	0.1uF 16V	C909	1-164-360-11	CERAMIC CHIP	0.1uF 16V
C545	1-107-814-11	TANTAL. CHIP	33uF 20% 10V	C910	1-164-360-11	CERAMIC CHIP	0.1uF 16V
C546	1-164-360-11	CERAMIC CHIP	0.1uF 16V	C913	1-162-970-11	CERAMIC CHIP	0.01uF 10% 25V
C547	1-107-765-11	TANTAL. CHIP	3.3uF 20% 16V	C921	1-164-506-11	CERAMIC CHIP	4.7uF 16V
C548	1-107-765-11	TANTAL. CHIP	3.3uF 20% 16V	C922	1-107-826-11	CERAMIC CHIP	0.1uF 10% 16V
C549	1-107-814-11	TANTAL. CHIP	33uF 20% 10V	C923	1-164-227-11	CERAMIC CHIP	0.022uF 10% 25V
C550	1-107-814-11	TANTAL. CHIP	33uF 20% 10V	C924	1-162-964-11	CERAMIC CHIP	0.001uF 10% 50V
C551	1-107-765-11	TANTAL. CHIP	3.3uF 20% 16V	C925	1-162-966-11	CERAMIC CHIP	0.0022uF 10% 50V
C552	1-107-765-11	TANTAL. CHIP	3.3uF 20% 16V	C926	1-162-969-11	CERAMIC CHIP	0.0068uF 10% 25V
C553	1-107-814-11	TANTAL. CHIP	33uF 20% 10V	C927	1-107-826-11	CERAMIC CHIP	0.1uF 10% 16V
C554	1-104-813-11	TANTAL. CHIP	10uF 20% 16V	C928	1-107-826-11	CERAMIC CHIP	0.1uF 10% 16V
C555	1-107-682-11	CERAMIC CHIP	1uF 10% 16V	C929	1-107-833-11	ELECT CHIP	33uF 20% 6.3V
C570	1-164-677-11	CERAMIC CHIP	0.033uF 10% 16V	C930	1-162-957-11	CERAMIC CHIP	220PF 5% 50V
C571	1-164-677-11	CERAMIC CHIP	0.033uF 10% 16V	C931	1-107-813-11	TANTAL. CHIP	10uF 20% 6.3V
C572	1-164-677-11	CERAMIC CHIP	0.033uF 10% 16V	< CONNECTOR >			
C575	1-107-817-11	TANTAL. CHIP	0.33uF 20% 16V	CN501	1-691-384-11	CONNECTOR, FFC/FPC 20P	


Ref.No.	Part No.	Description	Remark	Ref.No.	Part No.	Description	Remark
CN502	1-691-374-11	CONNECTOR, FFC/FPC 10P		IC805	8-759-153-90	IC UPD7225GB-3B7	
CN801	1-691-346-11	CONNECTOR, FFC/FPC (ZIF) 8P		IC806	8-759-710-79	IC NJM2107F	
CN802	1-691-381-11	CONNECTOR, FFC/FPC 17P		IC901	8-759-981-69	IC LM2904M	
		< DIODE >		IC921	8-759-331-73	IC MB3800PNF	
D303	8-719-017-58	DIODE MA8068				< JACK >	
D304	8-719-017-58	DIODE MA8068		J302	1-764-453-11	JACK (□)	
D305	8-719-017-58	DIODE MA8068		J901	1-691-099-51	JACK, DC (POLARITY UNIFIED TYPE)	(DC IN 4.5V)
D309	8-719-404-46	DIODE MA110				< COIL >	
D311	8-719-017-76	DIODE MA8030		L303	1-414-398-11	INDUCTOR 10uH	
D502	8-719-421-27	DIODE MA728		L304	1-414-398-11	INDUCTOR 10uH	
D801	8-719-052-72	DIODE CL-220HR-C (OPR/CHG)		L501	1-414-398-11	INDUCTOR 10uH	
D802	8-719-420-51	DIODE MA729		L503	1-414-402-11	INDUCTOR 47uH	
D803	8-719-421-27	DIODE MA728		L505	1-412-028-11	INDUCTOR CHIP 4.7uH	
D804	8-719-421-27	DIODE MA728		L507	1-414-402-11	INDUCTOR 47uH	
D807	8-719-421-27	DIODE MA728		L508	1-414-410-21	INDUCTOR 10uH	
D809	8-719-421-27	DIODE MA728		L509	1-414-402-11	INDUCTOR 47uH	
D811	8-719-017-58	DIODE MA8068		L510	1-414-410-21	INDUCTOR 10uH	
D901	8-719-974-51	DIODE SB20-03P		L511	1-412-034-11	INDUCTOR CHIP 330uH	
D905	8-719-974-51	DIODE SB20-03P		L515	1-414-402-11	INDUCTOR 47uH	
D921	8-719-801-78	DIODE 1SS184		L516	1-414-402-11	INDUCTOR 47uH	
D922	8-719-801-78	DIODE 1SS184		L601	1-414-398-11	INDUCTOR 10uH	
		< FERRITE BEAD >		L801	1-414-402-11	INDUCTOR 47uH	
FB301	1-414-228-11	INDUCTOR, FERRITE BEAD		L921	1-411-197-11	COIL, DD CONVERTER	
FB302	1-414-228-11	INDUCTOR, FERRITE BEAD		L922	1-414-410-21	INDUCTOR 10uH	
FB303	1-414-228-11	INDUCTOR, FERRITE BEAD				< FILTER >	
FB304	1-414-228-11	INDUCTOR, FERRITE BEAD		LF301	1-409-755-11	FILTER, CHIP EMI (COMMON MODE)	
FB503	1-414-228-11	INDUCTOR, FERRITE BEAD	(US, CND, AEP, UK, AUS)	LF303	1-403-601-21	FILTER, COMMON MODE (US, CND, AEP, UK, AUS)	
FB504	1-414-228-11	INDUCTOR, FERRITE BEAD	(US, CND, AEP, UK, AUS)	LF901	1-411-312-11	FILTER, COMMON MODE	
FB505	1-414-228-11	INDUCTOR, FERRITE BEAD	(US, CND, AEP, UK, AUS)			< TRANSISTOR >	
		< IC >		Q312	8-729-905-12	TRANSISTOR DTA144EU	
IC304	8-759-332-46	IC CS4330-CSR		Q313	8-729-929-99	TRANSISTOR UMB11-TN	
IC308	8-759-166-95	IC LA4805V-TLM		Q320	8-729-905-18	TRANSISTOR DTC144EU	
IC309	8-759-173-00	IC XC61AN1102MR		Q502	8-729-422-39	TRANSISTOR XN4404	
IC314	8-759-332-22	IC DS1802-TE2		Q504	8-729-019-25	TRANSISTOR 2SK1467-TD	
IC501	8-752-072-68	IC CXA1981AR		Q510	8-729-019-25	TRANSISTOR 2SK1467-TD	
IC502	8-759-031-84	IC SC7S04F		Q801	8-729-013-37	TRANSISTOR 2SC4213-AB-TE85L	
IC503	8-752-375-82	IC CXD2535BR-1		Q802	8-729-031-34	TRANSISTOR 2SK2034	
IC504	8-759-332-25	IC XC31PNS01AMR		Q803	8-729-905-18	TRANSISTOR DTC144EU	
IC505	8-759-179-60	IC MPC17A38VMEL		Q804	8-729-905-12	TRANSISTOR DTA144EU	
IC508	8-759-710-79	IC NJM2107F		Q805	8-729-013-37	TRANSISTOR 2SC4213-AB-TE85L	
IC601	8-752-375-50	IC CXD2536AR		Q901	8-729-905-57	TRANSISTOR DTA124EU	
IC602	8-759-341-28	IC HM51W4400TT7-8		Q902	8-729-230-63	TRANSISTOR 2SC4116-YG	
IC801	8-752-870-05	IC CXP81960M-612R		Q903	8-729-905-61	TRANSISTOR DTC124EU	
IC802	8-759-343-90	IC RS5RJ29261-T1		Q904	8-729-922-34	TRANSISTOR 2SD1758F5-QR	
IC803	8-759-252-57	IC S-2900AUT-T1		Q905	8-729-031-34	TRANSISTOR 2SK2034	

MAIN

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
Q906	8-729-024-44	TRANSISTOR	2SK2315TYTR	R524	1-216-821-11	METAL CHIP	1K 5% 1/16W
Q907	8-729-905-57	TRANSISTOR	DTA124EU	R525	1-216-821-11	METAL CHIP	1K 5% 1/16W
Q908	8-729-905-18	TRANSISTOR	DTC144EU	R528	1-216-831-11	METAL CHIP	6.8K 5% 1/16W
Q911	8-729-031-34	TRANSISTOR	2SK2034	R529	1-216-833-11	METAL CHIP	10K 5% 1/16W
Q921	8-729-031-31	TRANSISTOR	2SD2402	R530	1-216-845-11	METAL CHIP	100K 5% 1/16W
Q922	8-729-031-29	TRANSISTOR	2SA1641S	R536	1-216-859-11	METAL CHIP	1.5M 5% 1/16W
Q923	8-729-120-28	TRANSISTOR	2SC1623-L5L6	R537	1-216-817-11	METAL CHIP	470 5% 1/16W
< RESISTOR >				R538	1-216-833-11	METAL CHIP	10K 5% 1/16W
R119	1-216-789-11	METAL CHIP	2.2 5% 1/16W	R539	1-216-864-11	METAL CHIP	0 5% 1/16W
R120	1-218-700-11	METAL CHIP	2.2K 0.50% 1/16W	R540	1-216-864-11	METAL CHIP	0 5% 1/16W
R122	1-216-819-11	METAL CHIP	680 5% 1/16W	R550	1-216-839-11	METAL CHIP	33K 5% 1/16W
R135	1-216-864-11	METAL CHIP	0 5% 1/16W (E, JEW)	R551	1-216-839-11	METAL CHIP	33K 5% 1/16W
R136	1-218-867-11	METAL CHIP	6.8K 0.50% 1/16W	R552	1-216-839-11	METAL CHIP	33K 5% 1/16W
R137	1-216-827-11	METAL CHIP	3.3K 5% 1/16W	R553	1-216-839-11	METAL CHIP	33K 5% 1/16W
R145	1-218-704-11	METAL CHIP	3.3K 0.50% 1/16W	R554	1-216-839-11	METAL CHIP	33K 5% 1/16W
R219	1-216-789-11	METAL CHIP	2.2 5% 1/16W	R555	1-216-839-11	METAL CHIP	33K 5% 1/16W
R220	1-218-700-11	METAL CHIP	2.2K 0.50% 1/16W	R556	1-216-841-11	METAL CHIP	47K 5% 1/16W
R222	1-216-819-11	METAL CHIP	680 5% 1/16W	R557	1-216-821-11	METAL CHIP	1K 5% 1/16W
R235	1-216-864-11	METAL CHIP	0 5% 1/16W (E, JEW)	R558	1-216-821-11	METAL CHIP	1K 5% 1/16W
R236	1-218-867-11	METAL CHIP	6.8K 0.50% 1/16W	R559	1-216-811-11	METAL CHIP	150 5% 1/16W
R237	1-216-827-11	METAL CHIP	3.3K 5% 1/16W	R560	1-216-845-11	METAL CHIP	100K 5% 1/16W
R245	1-218-704-11	METAL CHIP	3.3K 0.50% 1/16W	R596	1-216-864-11	METAL CHIP	0 5% 1/16W
R334	1-216-864-11	METAL CHIP	0 5% 1/16W (E, JEW)	R597	1-216-864-11	METAL CHIP	0 5% 1/16W
R354	1-216-864-11	METAL CHIP	0 5% 1/16W	R598	1-216-864-11	METAL CHIP	0 5% 1/16W
R360	1-216-837-11	METAL CHIP	22K 5% 1/16W	R802	1-216-851-11	METAL CHIP	330K 5% 1/16W
R361	1-216-839-11	METAL CHIP	33K 5% 1/16W	R803	1-216-857-11	METAL CHIP	1M 5% 1/16W
R362	1-216-839-11	METAL CHIP	33K 5% 1/16W	R804	1-216-857-11	METAL CHIP	1M 5% 1/16W
R364	1-216-789-11	METAL CHIP	2.2 5% 1/16W	R805	1-216-857-11	METAL CHIP	1M 5% 1/16W
R365	1-216-829-11	METAL CHIP	4.7K 5% 1/16W	R806	1-216-857-11	METAL CHIP	1M 5% 1/16W
R366	1-216-833-11	METAL CHIP	10K 5% 1/16W	R807	1-216-857-11	METAL CHIP	1M 5% 1/16W
R367	1-216-829-11	METAL CHIP	4.7K 5% 1/16W	R808	1-216-851-11	METAL CHIP	330K 5% 1/16W
R368	1-216-829-11	METAL CHIP	4.7K 5% 1/16W	R809	1-216-829-11	METAL CHIP	4.7K 5% 1/16W
R374	1-216-845-11	METAL CHIP	100K 5% 1/16W	R813	1-216-855-11	METAL CHIP	680K 5% 1/16W
R501	1-216-821-11	METAL CHIP	1K 5% 1/16W	R815	1-216-847-11	METAL CHIP	150K 5% 1/16W
R502	1-216-837-11	METAL CHIP	22K 5% 1/16W	R816	1-216-851-11	METAL CHIP	330K 5% 1/16W
R504	1-216-789-11	METAL CHIP	2.2 5% 1/16W	R817	1-216-851-11	METAL CHIP	330K 5% 1/16W
R505	1-216-789-11	METAL CHIP	2.2 5% 1/16W	R819	1-216-851-11	METAL CHIP	330K 5% 1/16W
R506	1-216-811-11	METAL CHIP	150 5% 1/16W	R820	1-216-851-11	METAL CHIP	330K 5% 1/16W
R507	1-216-825-11	METAL CHIP	2.2K 5% 1/16W	R821	1-216-851-11	METAL CHIP	330K 5% 1/16W
R508	1-216-825-11	METAL CHIP	2.2K 5% 1/16W	R822	1-218-732-11	METAL CHIP	47K 0.50% 1/16W
R509	1-216-825-11	METAL CHIP	2.2K 5% 1/16W	R823	1-218-732-11	METAL CHIP	47K 0.50% 1/16W
R510	1-216-853-11	METAL CHIP	470K 5% 1/16W	R824	1-216-851-11	METAL CHIP	330K 5% 1/16W
R512	1-216-809-11	METAL CHIP	100 5% 1/16W	R827	1-216-851-11	METAL CHIP	330K 5% 1/16W
R513	1-216-837-11	METAL CHIP	22K 5% 1/16W	R828	1-216-845-11	METAL CHIP	100K 5% 1/16W
R514	1-216-835-11	METAL CHIP	15K 5% 1/16W	R829	1-216-845-11	METAL CHIP	100K 5% 1/16W
R520	1-216-833-11	METAL CHIP	10K 5% 1/16W	R831	1-216-845-11	METAL CHIP	100K 5% 1/16W
R521	1-216-845-11	METAL CHIP	100K 5% 1/16W	R834	1-216-857-11	METAL CHIP	1M 5% 1/16W
R522	1-216-861-11	METAL CHIP	2.2M 5% 1/16W	R835	1-216-845-11	METAL CHIP	100K 5% 1/16W
R523	1-216-827-11	METAL CHIP	3.3K 5% 1/16W	R836	1-216-851-11	METAL CHIP	330K 5% 1/16W
				R837	1-218-732-11	METAL CHIP	47K 0.50% 1/16W

Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
R838	1-216-857-11	METAL CHIP	1M 5% 1/16W	R931	1-216-851-11	METAL CHIP	330K 5% 1/16W
R839	1-218-716-11	METAL CHIP	10K 0.50% 1/16W	R934	1-216-845-11	METAL CHIP	100K 5% 1/16W
R840	1-216-863-11	METAL CHIP	3.3M 5% 1/16W	R935	1-216-845-11	METAL CHIP	100K 5% 1/16W
R841	1-218-867-11	METAL CHIP	6.8K 0.50% 1/16W	R5001	1-216-864-11	METAL CHIP	0 5% 1/16W (E, JEW)
R842	1-218-716-11	METAL CHIP	10K 0.50% 1/16W	R5002	1-216-864-11	METAL CHIP	0 5% 1/16W (E, JEW)
R843	1-218-720-11	METAL CHIP	15K 0.50% 1/16W	R5003	1-216-864-11	METAL CHIP	0 5% 1/16W (E, JEW)
R844	1-218-883-11	METAL CHIP	33K 0.50% 1/16W	< VARIABLE RESISTOR >			
R845	1-218-732-11	METAL CHIP	47K 0.50% 1/16W	RV921	1-238-089-11	RES, ADJ, CERMET	4.7K
R846	1-216-863-11	METAL CHIP	3.3M 5% 1/16W	< SWITCH >			
R852	1-218-899-11	METAL CHIP	150K 0.50% 1/16W	S302	1-762-079-11	SWITCH, SLIDE (BASS BOOST)	
R854	1-216-847-11	METAL CHIP	150K 5% 1/16W	S811	1-692-088-91	SWITCH, TACTILE (PLAY MODE)	
R856	1-216-821-11	METAL CHIP	1K 5% 1/16W	S817	1-762-342-11	SWITCH, PUSH (1 KEY) (OPEN/CLOSE DET)	
R857	1-216-864-11	METAL CHIP	0 5% 1/16W	S818	1-762-078-11	SWITCH, SLIDE (HOLD →)	
R858	1-216-845-11	METAL CHIP	100K 5% 1/16W	S831	1-762-078-11	SWITCH, SLIDE (AVLS)	
R859	1-216-864-11	METAL CHIP	0 5% 1/16W	S901	1-572-467-31	SWITCH, PUSH (1 KEY) (AC/EXT DET)	
R860	1-216-845-11	METAL CHIP	100K 5% 1/16W	S902	1-692-532-21	SWITCH, PUSH (1 KEY) (AM3/NI DET)	
R863	1-216-837-11	METAL CHIP	22K 5% 1/16W	< THERMISTOR (POSITIVE) >			
R864	1-216-837-11	METAL CHIP	22K 5% 1/16W	THP901	1-810-792-11	SWITCH, POLYETHYLENE	
R865	1-216-845-11	METAL CHIP	100K 5% 1/16W	< VIBRATOR >			
R866	1-216-845-11	METAL CHIP	100K 5% 1/16W	X601	1-760-173-11	VIBRATOR, CRYSTAL (45MHz)	
R867	1-216-864-11	METAL CHIP	0 5% 1/16W	X801	1-760-174-11	VIBRATOR, CERAMIC (12MHz)	
R868	1-216-864-11	METAL CHIP	0 5% 1/16W	*****			
R901	1-218-768-11	METAL CHIP	470K 0.50% 1/10W	MISCELLANEOUS			
R902	1-218-748-11	METAL CHIP	220K 0.50% 1/16W	*****			
R903	1-216-864-11	METAL CHIP	0 5% 1/16W	51	1-473-078-11	SW 3 UNIT	
R904	1-218-867-11	METAL CHIP	6.8K 0.50% 1/16W	101	1-651-017-11	CLV FLEXIBLE BOARD	
R905	1-218-716-11	METAL CHIP	10K 0.50% 1/16W	102	1-651-650-11	MD FLEXIBLE BOARD	
R906	1-218-899-11	METAL CHIP	150K 0.50% 1/16W	△105	8-583-010-41	OPTICAL PICK-UP BLOCK KMS-201A/J-N	
R907	1-218-899-11	METAL CHIP	150K 0.50% 1/16W	LCD901	1-810-789-11	LCD MODULE	
R908	1-218-736-11	METAL CHIP	68K 0.50% 1/16W	M901	1-698-542-11	MOTOR (SPINDLE)	
R909	1-218-732-11	METAL CHIP	47K 0.50% 1/16W	M902	1-698-315-11	MOTOR, DC (SLED)	
R910	1-216-821-11	METAL CHIP	1K 5% 1/16W	*****			
R911	1-216-845-11	METAL CHIP	100K 5% 1/16W	ACCESSORIES & PACKING MATERIALS			
R912	1-218-772-11	METAL CHIP	680K 0.50% 1/10W	*****			
R913	1-218-768-11	METAL CHIP	470K 0.50% 1/10W	△	1-467-007-21	ADAPTOR, AC (AC-E455) (AUS)	
R914	1-218-768-11	METAL CHIP	470K 0.50% 1/10W	△	1-467-009-11	ADAPTOR, AC (AC-E455) (US, CND)	
R915	1-218-752-11	METAL CHIP	330K 0.50% 1/16W		1-467-520-11	REMOTE CONTROL UNIT (RM-MZE2MP)	
R916	1-217-806-11	METAL CHIP	1 5% 1/8W	△	1-467-550-11	ADAPTOR, AC (AC-E455A) (E, JEW)	
R917	1-217-806-11	METAL CHIP	1 5% 1/8W	△	1-473-115-11	ADAPTOR, AC (AC-E455D) (UK)	
R918	1-216-857-11	METAL CHIP	1M 5% 1/16W	△	1-473-116-31	ADAPTOR, AC (AC-E455D) (AEP)	
R919	1-218-772-11	METAL CHIP	680K 0.50% 1/10W		1-528-533-11	BATTERY PACK (JEW)	
R920	1-218-768-11	METAL CHIP	470K 0.50% 1/10W				
R921	1-216-817-11	METAL CHIP	470 5% 1/16W				
R922	1-216-827-11	METAL CHIP	3.3K 5% 1/16W				
R923	1-216-819-11	METAL CHIP	680 5% 1/16W				
R924	1-216-819-11	METAL CHIP	680 5% 1/16W				
R925	1-216-825-11	METAL CHIP	2.2K 5% 1/16W				
R926	1-216-797-11	METAL CHIP	10 5% 1/16W				
R927	1-218-883-11	METAL CHIP	33K 0.50% 1/16W				
R928	1-218-708-11	METAL CHIP	4.7K 0.50% 1/16W				

The components identified by mark  or dotted line with mark  are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque  sont critiques pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

Ref.No.	Part No.	Description	Remark
	△ 1-569-007-11	ADAPTER, CONVERSION 2P (E, JEW)	
	1-759-048-11	BATTERY CASE (LITHIUM ION) (EXCEPT US)	
	1-759-048-21	BATTERY CASE (LITHIUM ION) (US)	
	3-798-387-11	MANUAL, INSTRUCTION (ENGLISH, FRENCH, GERMAN, SPANISH) (CND, AEP, E, JEW)	
	3-798-387-21	MANUAL, INSTRUCTION (ENGLISH) (US, UK, AUS)	
	3-798-387-41	MANUAL, INSTRUCTION (DUTCH, SWEDISH, ITALIAN, PORTUGUESE) (AEP)	
	3-798-387-51	MANUAL, INSTRUCTION (JAPANESE, KOREAN) (JEW)	
	3-798-387-61	MANUAL, INSTRUCTION (CHINESE) (E)	
	3-800-626-01	INSTRUCTION (A7 SIZE) (JEW)	
*	3-922-351-01	INDIVIDUAL CARTON (US)	
*	3-922-352-01	INDIVIDUAL CARTON (EXCEPT US)	
*	3-922-357-01	CUSHION (US)	
*	3-922-358-01	CUSHION (EXCEPT US)	
	4-972-888-01	CASE, CARRYING	
	8-953-091-90	HEADPHONE MDR-E838MP SET (EXCEPT US)	
	8-953-101-90	HEADPHONE MDR-24MP SET (US)	

The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque △ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.
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